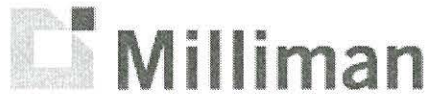


EXHIBIT VIII



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October 23, 2018

Mr. Luis M. Collazo Rodríguez, Esq.
Administrator
Puerto Rico Government Employees Retirement System
437 Ponce de León Avenue, 15th Floor
Hato Rey, PR 00917-3711



Re: Third addendum to June 30, 2016 PRGERS valuation report to reflect updated assets

Dear Mr. Collazo:

As requested, we have calculated updated GASB 67 and GASB 45 information for the July 1, 2015 to June 30, 2016 fiscal year for the Puerto Rico Government Employees Retirement System ("PRGERS"). Audited PRGERS financial statements as of June 30, 2016 were provided to us on October 8, 2018 and are the basis for the updated asset and liability figures in the seven exhibits attached to this letter. (Prior addendums were provided on March 15, 2018 and June 6, 2018 to reflect updated assets as of those times.) For convenience, the prior June 30, 2016 PRGERS valuation report, dated November 7, 2017, is also attached.

Exhibits

The following Exhibits are attached to this letter to set forth the updated asset and liability amounts resulting from all updated financial statements provided since the initial June 30, 2016 valuation report, dated November 7, 2017:

- Exhibit I provides the updated Statement of Net Fiduciary Position as of June 30, 2015 and June 30, 2016
- Exhibit II provides the updated Statement of Changes in Fiduciary Net Position for the 2015-2016 fiscal year
- Exhibit III provides the updated estimated annual rate of return for the year ending June 30, 2016.
- Exhibit IV provides the updated June 30, 2016 Net Pension Liability

This analysis was prepared solely to provide assistance to PRGERS. Milliman and PRGERS do not intend to benefit and assume no duty or liability to other parties who receive this work. Milliman and PRGERS recommend that any third party recipient of this analysis be aided by its own actuary or other qualified professional when reviewing the Milliman analysis. Any distribution of this analysis should be made in its entirety.

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Mr. Luis M. Collazo Rodríguez, Esq.
October 23, 2018
Page 2

- Exhibit V provides the updated Changes in Net Pension Liability for the 2015-2016 fiscal year and the updated June 30, 2016 Sensitivity Analysis
- Exhibit VI provides the updated June 30, 2016 Net OPEB Obligation and the updated Fiscal Year 2016-2017 Annual OPEB Cost
- Exhibit VII provides the updated GASB 45 Schedule of Employer Contributions

Commentary

The updated financial statements reflect new asset balances at the beginning and end of the year and differences in cash flows during the year. The change in Fiduciary Net Position (a reduction of \$38.4 million from the original June 30, 2016 value) changes the GASB 67 Net Pension Liability at the end of the year. As net assets have been exhausted, there is no GASB 67 date of depletion projection performed, and the effective discount rate does not change. Thus the June 30, 2016 Total Pension Liability does not change from that shown in the original June 30, 2016 PRGERS valuation report.

The medical insurance plan contribution accounted for under GASB 45 is funded on a pay-as-you-go basis, and the employer contribution in the updated financial statements is \$2.7 million lower than the amount used in the original June 30, 2016 PRGERS valuation report. This causes an increase in the June 30, 2016 Net OPEB Obligation and a decrease in the Fiscal Year 2016-2017 Annual OPEB Cost.

The Additional Uniform Contributions under Act 32-2013 (as amended by Act 244-2014) for 2017-18 would have changed had the updated financial statement information as of June 30, 2016 been available when those calculations were originally performed. As directed by the System, the Additional Uniform Contribution for that fiscal year will not be restated.

Basis for Analysis

The explanatory notes contained in the June 30, 2016 actuarial valuation report (dated November 7, 2017), including statements of reliance and limitations on use, continue to apply. Please refer to this report for more information.

In performing this analysis, we relied on the census data, asset information, and other information (both written and oral) provided by the System. We have not audited or verified the census data, asset information, or other information. To the extent that any of these are inaccurate or incomplete, the results of this valuation may likewise be inaccurate or incomplete.

Differences between projections and actual amounts depend on the extent to which future experience conforms to the assumptions made for this analysis. It is certain that actual

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Mr. Luis M. Collazo Rodríguez, Esq.
October 23, 2018
Page 3

experience will not conform exactly to the assumptions used in this analysis. Actual amounts will differ from projected amounts to the extent that actual experience deviates from expected experience.

Milliman's work is prepared solely for the internal business use of the Commonwealth of Puerto Rico Government Employees Retirement System. To the extent that Milliman's work is not subject to disclosure under applicable public records laws, Milliman's work may not be provided to third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of its work product. Milliman's consent to release its work product to any third party may be conditioned on the third party signing a Release, subject to the following exception:

- PRGERS may provide a copy of Milliman's work, in its entirety, to PRGERS' professional service advisors who are subject to a duty of confidentiality and who agree to not use Milliman's work for any purpose other than to benefit PRGERS.

No third party recipient of Milliman's work product should rely upon Milliman's work product. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

We are members of the Society of Actuaries and meet the qualification standards of the American Academy of Actuaries to render this actuarial opinion.

Please let us know if you have any questions.

Sincerely,



Glenn D. Bowen



Katherine A. Warren

GDB:KAW78PRG01-11
g:\corr\2018\prt\ltr10_PRGERS_2016_valuation_report_THIRD_ADDENDUM.docx

Attachments

cc: Cecile Tirado Soto - PRGERS
Timothy Nugent - Milliman

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Exhibit I

PUERTO RICO GOVERNMENT EMPLOYEES RETIREMENT SYSTEM

SECTION II - SYSTEM ASSETS

A. Statement of Fiduciary Net Position

	<u>June 30, 2015</u>	<u>June 30, 2016</u>
Assets		
Cash and cash equivalents	363,047,000	652,211,000
Receivables and prepaid expenses:		
Accounts receivable	318,117,000	290,741,000
Prepaid bond cost	<u>0</u>	<u>0</u>
Total receivables	318,117,000	290,741,000
Investments:		
Bonds and notes	764,445,000	445,891,000
Nonexchange commingled trust funds	0	219,585,000
Stocks	409,049,000	1,277,000
Investments in limited partnerships	0	47,461,000
Total loans to plan members	607,617,000	596,997,000
Alternative investment	53,978,000	0
COFINA investment	89,139,000	0
Other assets	<u>785,000</u>	<u>754,000</u>
Total investments	1,925,013,000	1,311,965,000
Invested securities lending cash collateral	80,071,000	19,754,000
Capital assets	10,522,000	9,733,000
Total assets	2,696,770,000	2,284,404,000
Liabilities		
Bonds payable	3,119,325,000	3,148,996,000
Securities lending cash collateral	80,071,000	19,754,000
Other liabilities	<u>165,647,000</u>	<u>381,539,000</u>
Total liabilities	3,365,043,000	3,550,289,000
Net position restricted for pensions	(668,273,000)	(1,265,885,000)

This exhibit is an attachment to an October 23, 2018 letter to Mr. Luis M. Collazo Rodríguez. Please refer to that letter for more information, including explanatory notes and statements of reliance.

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Exhibit II

PUERTO RICO GOVERNMENT EMPLOYEES RETIREMENT SYSTEM

SECTION II - SYSTEM ASSETS

B. Statement of Changes in Fiduciary Net Position

June 30, 2016

Additions

a. Contributions

Employer Contributions	\$579,657,000
Member Contributions	333,633,000
Early Retirement Programs	3,146,000
Interest on cultural loans	452,000
Appropriations for Special Laws	<u>196,674,000</u>
Total Contributions	\$1,113,562,000

b. Investment Income

Interest Income	\$59,651,000
Dividend Income	277,000
Net Appreciation of Investments	870,000
Other Income	52,791,000
Securities lending income	113,000
Impairment loss on deposits with governmental bank	(20,934,000)
Investment Related Expenses	<u>(2,631,000)</u>
Net Investment Income	\$90,137,000

Total Additions \$1,203,699,000

Deductions

Refund of Contributions	\$34,937,000
Annuities and Death Benefits	1,335,966,000
Special Law Benefits	196,674,000
Interest on cultural loans	452,000
Administrative Expenses	27,670,000
Other Expenses	9,401,000
Cost of Bonds	<u>196,211,000</u>
Total deductions	\$1,801,311,000

Net Increase (Decrease) (\$597,612,000)

Net position restricted for pensions

Beginning of year (June 30, 2015)	(668,273,000)
End of year (June 30, 2016)	(1,265,885,000)

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Exhibit III

PUERTO RICO GOVERNMENT EMPLOYEES RETIREMENT SYSTEM

SECTION II - SYSTEM ASSETS

C. Estimated Annual Rate of Return for year ending June 30, 2016

	<u>Gross Asset Basis</u>	<u>Net Asset Basis</u>
1. Value of Assets as of June 30, 2015	\$2,451,052,000	(\$668,273,000)
2. Total Contributions	1,113,562,000	1,113,562,000
3. Benefit Payments and Expenses	1,801,311,000	1,801,311,000
4. Value of Assets as of June 30, 2016	1,883,111,000	(1,265,885,000)
5. Non-Investment Increment: (2) - (3)	(687,749,000)	(687,749,000)
6. Investment Increment: (4) - (1) - (5)	119,808,000	90,137,000
7. Time Weighted Value: (1) +.5 * (5)	2,107,177,500	(1,012,147,500)
8. Estimated Annual Rate of Return: (6) / (7)	5.69%	N/A

D. Estimated Historical Rates of Return

<u>Plan Year Ending</u>	<u>Gross Asset Basis</u>	<u>Net Asset Basis</u>
June 30, 2016	5.69%	N/A
June 30, 2015	3.21%	N/A
June 30, 2014	8.46%	94.73%
June 30, 2013	7.88%	31.38%
June 30, 2012	7.39%	22.31%
5-year Compounded Annual Return	6.51%	N/A

Prior year returns were calculated by Milliman using the methodology in Section D above, based on asset amounts and cash flows shown in prior valuation reports.

The rates of return determined on a gross asset basis are for illustrative purposes only and assume non-investment cash flows are the same as that determined on a net asset basis. Because of the significant amount of Pension Obligation Bond proceeds that are currently invested (approximately \$3 billion), the net asset returns are significantly larger than the returns on a gross asset basis.

This exhibit is an attachment to an October 23, 2018 letter to Mr. Luis M. Collazo Rodríguez. Please refer to that letter for more information, including explanatory notes and statements of reliance.

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Exhibit IV

PUERTO RICO GOVERNMENT EMPLOYEES RETIREMENT SYSTEM

SECTION IV - GASB 67 ACCOUNTING INFORMATION

B. Net Pension Liability

Net Pension Liability	<u>June 30, 2015</u>	<u>June 30, 2016</u>
Total pension liability	\$32,669,162,000	\$36,432,873,000
Fiduciary net position	(668,273,000)	(1,265,885,000)
Net pension liability	33,337,435,000	37,698,758,000
Fiduciary net position as a % of total pension liability	-2.05%	-3.47%
Covered payroll	\$3,319,280,000	\$3,344,382,000
Net pension liability as a % of covered payroll	1004.36%	1127.23%

The total pension liability was determined by an actuarial valuation as of July 1, 2015, calculated based on the discount rate and actuarial assumptions as shown in Section VIII and was then projected forward to June 30, 2016. There have been no significant changes between the valuation date of July 1, 2015 and the fiscal year end. Any significant changes during this period must be reflected as prescribed by GASB 67. Covered Payroll is as of July 1, 2015.

Discount Rate

The plan's fiduciary net position was not projected to be available to make all projected future benefit payments of current active and inactive employees. Therefore, the discount rate for calculating the total pension liability is equal to the single equivalent rate that results in the same actuarial present value as the long-term expected rate of return applied to benefit payments, to the extent that the plan's fiduciary net position is projected to be sufficient to make projected benefit payments, and the municipal bond rate applied to benefit payments, to the extent that the plan's fiduciary net position is not projected to be sufficient.

	<u>June 30, 2015</u>	<u>June 30, 2016</u>
Discount rate	3.80%	2.85%
Long-term expected rate of return net of investment expense	6.55%	6.55%
Municipal bond rate *	3.80%	2.85%

* Bond Buyer General Obligation 20-Bond Municipal Bond Index

This exhibit is an attachment to an October 23, 2018 letter to Mr. Luis M. Collazo Rodríguez. Please refer to that letter for more information, including explanatory notes and statements of reliance.

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Exhibit V

PUERTO RICO GOVERNMENT EMPLOYEES RETIREMENT SYSTEM

SECTION IV - GASB 67 ACCOUNTING INFORMATION

D. Changes in Net Pension Liability

	Increase (Decrease)		
Changes in Net Pension Liability	Total Pension Liability (a)	Plan Fiduciary Net Position (b)	Net Pension Liability (a) - (b)
Balances as of June 30, 2015	\$32,669,162,000	(\$668,273,000)	\$33,337,435,000
Changes for the year:			
Service cost	496,732,000		496,732,000
Interest on total pension liability	1,230,798,000		1,230,798,000
Effect of plan changes	0		0
Effect of economic/demographic (gains) or losses	(249,935,000)		(249,935,000)
Effect of assumptions changes or inputs	3,853,693,000		3,853,693,000
Benefit payments	(1,567,577,000)	(1,567,577,000)	0
Administrative expenses		(27,670,000)	27,670,000
Other expenses		(9,401,000)	9,401,000
Cost of bonds		(196,211,000)	196,211,000
Member contributions		333,633,000	(333,633,000)
Net investment income		90,137,000	(90,137,000)
Employer contributions		779,477,000	(779,477,000)
Balances as of June 30, 2016	\$36,432,873,000	(\$1,265,885,000)	\$37,698,758,000

E. Sensitivity Analysis

The following presents the net pension liability of PRGERS, calculated using the discount rate of 2.85%, as well as what the System's net pension liability would be if it were calculated using a discount rate that is 1 percentage point lower (1.85%) or 1 percentage point higher (3.85%) than the current rate.

	1% Decrease 1.85%	Current Discount Rate 2.85%	1% Increase 3.85%
Total pension liability	\$41,973,101,000	\$36,432,873,000	\$31,922,005,000
Fiduciary net position	(1,265,885,000)	(1,265,885,000)	(1,265,885,000)
Net pension liability	43,238,986,000	37,698,758,000	33,187,890,000

This exhibit is an attachment to an October 23, 2018 letter to Mr. Luis M. Collazo Rodríguez. Please refer to that letter for more information, including explanatory notes and statements of reliance.

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Exhibit VI

PUERTO RICO GOVERNMENT EMPLOYEES RETIREMENT SYSTEM

SECTION V - GASB 45 ACCOUNTING INFORMATION

D. Development of Net OPEB Obligation as of June 30, 2016

1. Net OPEB Obligation as of June 30, 2015	\$201,347,000
2. Annual OPEB Cost for Fiscal Year 2015 - 2016	98,565,000
3. Fiscal Year 2015 - 2016 Employer Contribution	93,728,000
4. Net OPEB Obligation as of June 30, 2016: (1) + (2) - (3)	\$206,184,000

E. Development of Fiscal Year 2016 - 2017 Annual OPEB Cost

1. Annual Required Contribution	\$105,859,000
2. Interest on Net OPEB Obligation as of June 30, 2016	6,186,000
3. Adjustment to the Annual Required Contribution	16,415,000
4. Fiscal Year 2016 - 2017 Annual OPEB Cost: (1) + (2) - (3)	\$95,630,000

The above liabilities are for the Medical Insurance Plan Contribution portion of the System Administered Benefits. See Section I for more information.

The above Net OPEB Obligation and Annual OPEB Cost are determined as if PRGERS was a single employer plan instead of a cost-sharing multiple employer plan. See Section I for more information.

This exhibit is an attachment to an October 23, 2018 letter to Mr. Luis M. Collazo Rodríguez. Please refer to that letter for more information, including explanatory notes and statements of reliance.

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Exhibit VII

PUERTO RICO GOVERNMENT EMPLOYEES RETIREMENT SYSTEM

SECTION V - GASB 45 ACCOUNTING INFORMATION

F. Schedule of Employer Contributions

<u>Year Ended June 30</u>	<u>Actual Employer Contribution</u>	<u>Annual Required Contribution</u>	<u>Percent Contributed</u>
2017 *	\$103,751,000	\$105,859,000	98.01%
2016	93,728,000	107,739,000	87.00
2015	97,374,000	103,878,000	93.74
2014	102,085,000	88,508,000	115.34
2013	91,823,000	154,999,000	59.24
2012	94,664,000	133,654,000	70.83
2011	93,851,000	129,395,000	72.53

- * Actual Employer Contribution for the year ended June 30, 2017 assumes:
- contribution of \$103.751 million for Special Law OPEB benefits.

The above liabilities are for the Medical Insurance Plan Contribution portion of the System Administered Benefits. See Section I for more information.

This exhibit is an attachment to an October 23, 2018 letter to Mr. Luis M. Collazo Rodríguez. Please refer to that letter for more information, including explanatory notes and statements of reliance.

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PUERTO RICO GOVERNMENT EMPLOYEES RETIREMENT SYSTEM

June 30, 2016 Actuarial Valuation Report

PRGERS net assets became negative in the 2014-2015 fiscal year. If the increasing Act 116-2011 employer contributions, the Supplemental Contribution under Act 3-2013, and the Additional Uniform Contribution under Act 32-2013 (as amended by Act 244-2014) are not paid in full on an annual basis, PRGERS will continue being rapidly disfunded and gross assets will be exhausted.

This report was prepared solely to provide assistance to PRGERS. Milliman and PRGERS do not intend to benefit and assume no duty or liability to other parties who receive this report. Milliman and PRGERS recommend that any third party recipient of this report be aided by its own actuary or other qualified professional when reviewing the Milliman report. Any distribution of this report should be made in its entirety.



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November 7, 2017

Mr. Luis M. Collazo Rodríguez, Esq.
Administrator
Puerto Rico Government Employees and
Judiciary Retirement System Administration
437 Ponce de León Avenue
Hato Rey, PR 00918

Dear Mr. Collazo:

This report presents the results of the actuarial valuation of the Puerto Rico Government Employees Retirement System (PRGERS), a cost-sharing multiple employer defined benefit pension plan, as of June 30, 2016. Section I contains highlights of the valuation including a general discussion. The subsequent Sections contain schedules summarizing the underlying calculations, asset information, participant data, plan benefits and actuarial assumptions and methods.

Purpose

The main purposes of this report are:

- to present information pertaining to the operation of the plan for inclusion in financial statements based on relevant Statements of the Government Accounting Standards Board (GASB);
- to review the experience under the plan since the previous valuation; and
- to assess the relative funded position of the plan.

The use of this report for purposes other than those stated above may not be appropriate and should be reviewed with Milliman.

This report was prepared solely to provide assistance to PRGERS. Milliman and PRGERS do not intend to benefit and assume no duty or liability to other parties who receive this report. Milliman and PRGERS recommend that any third party recipient of this report be aided by its own actuary or other qualified professional when reviewing the Milliman report. Any distribution of this report should be made in its entirety.

Mr. Luis M. Collazo Rodríguez, Esq.
November 7, 2017
Page 2

The report was prepared solely to provide assistance to the Commonwealth of Puerto Rico Government Employees Retirement System for a specific and limited purpose. It is a complex, technical analysis that assumes a high level of knowledge concerning PRGERS' operations, and uses PRGERS' data, which Milliman has not audited. Milliman and PRGERS do not intend to benefit and assume no duty or liability to other parties who receive this report. Milliman and PRGERS recommend that any third party recipient of this report be aided by its own actuary or other qualified professional when reviewing the Milliman report. Any distribution of this report should be made in its entirety.

Data Reliance

In performing this analysis, we relied on the census data, asset information, and other information (both written and oral) provided by the System. We have not audited or verified the census data, asset information, or other information. To the extent that any of these are inaccurate or incomplete, the results of this valuation may likewise be inaccurate or incomplete.

We did not audit the data used in our analysis, but did review it for reasonableness and consistency and have not found material defects in the data. It is possible that material defects in the data would be uncovered by a detailed, systematic review and comparison of the data to search for data values that are questionable or for relationships that are materially inconsistent. Such a review was beyond the scope of our assignment.

The asset information used for the valuation was taken from unaudited financial statements as of June 30, 2016 provided by PRGERS on September 11, 2017 and is subject to change upon audit.

Future Measurements

This valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits. While the valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct. Determining results using alternative assumptions is outside the scope of our engagement.

This report was prepared solely to provide assistance to PRGERS. Milliman and PRGERS do not intend to benefit and assume no duty or liability to other parties who receive this report. Milliman and PRGERS recommend that any third party recipient of this report be aided by its own actuary or other qualified professional when reviewing the Milliman report. Any distribution of this report should be made in its entirety.

Mr. Luis M. Collazo Rodríguez, Esq.
November 7, 2017
Page 3

Future actuarial measurements may differ significantly from the current measurements presented in this report due to factors such as the following:

- Plan experience differing from the actuarial assumptions;
- Future changes in the actuarial assumptions;
- Increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as potential additional contribution requirements due to changes in the plan's funded status); and,
- Changes in the plan provisions or accounting standards.

Due to the limited scope of our assignment, we did not perform an analysis of the potential range of such measurements.

Certification

We hereby certify that, to the best of our knowledge, this report is complete and accurate and all costs and liabilities were determined in conformance with generally accepted actuarial principles and practices which are consistent with the Actuarial Standards of Practice promulgated by the Actuarial Standards Board and the applicable Guides to Professional Conduct, amplifying Opinions, and supporting recommendations of the American Academy of Actuaries and are based on actuarial assumptions and methods adopted by the System. All of the actuarial assumptions were developed by Milliman in consultation with PRGERS. We believe that the actuarial assumptions and methods used in this actuarial valuation are reasonable for the main purposes of this report as stated herein.

Actuarial computations presented in this report are for purposes of fulfilling financial accounting requirements under the GASB Statements 45 and 67. The calculations in the enclosed report have been made on a basis consistent with our understanding of the plan provisions described in Section VII of this report, and of the applicable GASB Statements. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

This valuation reflects the law in effect as of June 30, 2016, as required by GASB accounting. As a known event, the impact of Act 3-2017 was reflected in the future salary growth assumption. The impact of Act 211-2015 and Act 170-2016 are not yet fully known, along with any prospective legislative changes, such as Act 106-2017 effective August 23, 2017, impacting the System.

This report was prepared solely to provide assistance to PRGERS. Milliman and PRGERS do not intend to benefit and assume no duty or liability to other parties who receive this report. Milliman and PRGERS recommend that any third party recipient of this report be aided by its own actuary or other qualified professional when reviewing the Milliman report. Any distribution of this report should be made in its entirety.

Mr. Luis M. Collazo Rodríguez, Esq.
November 7, 2017
Page 4

Qualifications

The consultants who worked on this assignment are pension actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

We are members of the Society of Actuaries and meet the qualification standards of the American Academy of Actuaries to render this actuarial opinion.

Respectfully submitted,



By: Glenn D. Bowen, F.S.A.
Member American Academy of Actuaries



Timothy J. Nugent, F.S.A.
Member American Academy of Actuaries



Katherine A. Warren, F.S.A.
Member American Academy of Actuaries

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PUERTO RICO GOVERNMENT EMPLOYEES RETIREMENT SYSTEM

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PUERTO RICO GOVERNMENT EMPLOYEES RETIREMENT SYSTEM

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PUERTO RICO GOVERNMENT EMPLOYEES RETIREMENT SYSTEM

SECTION I – SUMMARY

A. Summary of Principal Results of June 30, 2016 Actuarial Valuation

GASB 67 Accounting (\$ amounts in thousands)

	June 30, 2015 <u>Valuation</u>	June 30, 2016 <u>Valuation</u>
Total Pension Liability ¹		
Basic System Benefits	\$29,788,489	\$33,266,983
System Administered Benefits	<u>2,880,673</u>	<u>3,165,890</u>
Total	32,669,162	36,432,873
Net Fiduciary Position	(605,230) ²	(1,227,502)
Net Pension Liability	33,274,392	37,660,375

GASB 45 Accounting (\$ amounts in thousands)

	June 30, 2015 <u>Valuation</u>	June 30, 2016 <u>Valuation</u>
Actuarial Accrued Liability ¹	\$1,428,788	\$1,349,503
Actuarial Value of Assets	<u>0</u>	<u>0</u>
Unfunded Actuarial Accrued Liability	1,428,788	1,349,503
Employer Normal Cost	0	0
as a percent of payroll	0.00%	0.00%
Annual Required Contribution		
for upcoming fiscal year	107,739	105,859
as a percent of payroll	3.25%	3.17%

¹ A discussion of the benefits included in the Total Pension Liability and Actuarial Accrued Liability begins on page 3 of this section.

² Reflects addendum to June 30, 2015 valuation dated August 30, 2017.

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	July 1, 2014 Census Data <u>Collection</u>	July 1, 2015 Census Data <u>Collection</u>
<i>Participant Data</i>		
<u>Active Members</u>		
Number	119,790	119,679
Average Salary	\$27,709	\$27,945
Total Annual Salary	\$3,319,280,000	\$3,344,382,000
<u>Retirees</u>		
Number	97,056	94,979
Average Monthly Basic System Benefit	\$1,092	\$1,096
Average Monthly System Administered Benefit	\$68	\$66
<u>Disabled Members</u>		
Number	15,820	15,444
Average Monthly Basic System Benefit	\$490	\$503
Average Monthly System Administered Benefit	\$124	\$121
<u>Beneficiaries</u>		
Number	13,866	14,670
Average Monthly Basic System Benefit	\$307	\$386
Average Monthly System Administered Benefit	\$79	\$55

Basic System Benefit and System Administered Benefit amounts shown above are for pension benefits, including minimum benefits and COLAs, and excludes benefits payable at a later date to Law 70 Section 4B retirees. Special Law "bonus" benefits are not reflected.

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B. General Discussion

Basic System Benefits

As summarized in Section VII, the Puerto Rico Government Employees Retirement System (PRGERS) provides benefits to members, or their beneficiaries, upon:

- Retirement
- Disability
- Vested withdrawal
- Death
- Nonvested withdrawal (return of contributions)

These benefits will be referred to as the “Basic System Benefits” throughout this report. The contributions required by statute to fund the Basic System Benefits listed above total 25.525% of payroll for the 2016-2017 fiscal year, comprising 10% from members and 15.525% from employers. These contribution rates are not actuarially determined. Statutory funding requirements in future years will increase under Act 116-2011 (see page 4).

For members who retired prior to July 1, 2013 annuity benefits are subject to a \$500 monthly minimum. The amount in excess of \$200 and less than \$300 is a System Administered Benefit (see below) for all employees. The amount in excess of \$300 and less than \$400 is a System Administered Benefit for Public Corporation and Municipality employees.

System Administered Benefits

Also summarized in Section VII are benefits granted under a series of special laws that are administered by PRGERS, including:

- Additional minimum pension benefits (if retired prior to July 1, 2013)
- Ad-hoc cost-of-living adjustments (COLAs) provided in past years
- Additional benefits due to death or disability for reasons specified in Act 127-1958
- Medical insurance plan contribution (if retired prior to July 1, 2013)
- Christmas bonus (if retired prior to July 1, 2013)
- Medication bonus (if retired prior to July 1, 2013)

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System 2000 and Act 3 participants, other than those members receiving a disability annuity or receiving benefits under Act 127-1958, do not receive any System Administered Benefits.

These benefits are funded on a pay-as-you-go basis from the General Fund or specific entity of the Commonwealth of Puerto Rico and will be referred to as “System Administered Benefits” throughout this report. These benefits are not an obligation of the PRGERS assets.

Other Benefits

This report does not address the guarantee insurance reserve for life insurance on loans to plan members. (Please see Notes to Basic Financial Statements on pages 25 and 61 and Statements of Plan Net Assets on page 21 of the System’s June 30, 2014 Basic Financial Statements.)

Gross vs. Net Assets

As shown in Section II.C, gross assets equal \$1.92 billion as of June 30, 2016, while net assets equal *negative* \$1.23 billion as of the same date. The difference between the gross and net assets arises from a \$3.15 billion liability for “bonds payable” (shown in Section II.A). The System issued pension obligation bonds in 2008, has invested the proceeds, and retains the liability to service the pension obligation bond debt.

Act 116-2011 Employer Contributions

During the 2010-2011 fiscal year, Act 116-2011 was enacted which increased employer contributions from the prior 9.275% of compensation to 10.275% of compensation effective July 1, 2011. For the next four fiscal years effective July 1, employer contributions will increase annually by 1% of compensation. For the next five fiscal years, employer contributions will increase annually by 1.25% of compensation, reaching an ultimate employer contribution rate of 20.525% effective July 1, 2020.

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Other Contributions

In addition to the payroll based contributions described under Basic System Benefits above, the System will receive Supplemental Contributions and an Additional Uniform Contribution from the General Fund, public corporations or municipalities.

The Act 3 Supplemental Contribution equals \$2,000 for each pensioner (including beneficiaries receiving survivor benefits) who was previously benefitting as an Act 447 or Act 1 member while an active employee. This contribution will pay for the Medical Insurance Plan Contribution (up to \$1,200 per member), the Christmas Bonus (\$200 per member), and Medication Bonus (\$100 per member) payable to members who retired prior to July 1, 2013. The excess of these Supplemental Contributions will remain in the System to pay down the unfunded actuarial accrued liability.

The Act 32-2013 (as amended by Act 244-2014) Additional Uniform Contribution that will be received each fiscal year from 2013-2014 through 2032-2033 is defined in Act 244-2014 as follows:

“Additional Uniform Contribution.- shall mean, (a) for purposes of FY 2013-14, one hundred and twenty million dollars (\$120,000,000.00) and (b) for purposes of each fiscal year between 2014-15 and 2032-33, the uniform contribution certified by the external actuary of the System at least one hundred and twenty (120) days prior to the start of such fiscal year as necessary to avoid having the projected gross assets of the System, during any subsequent fiscal year, to fall below one billion dollars (\$1,000,000,000.00).”

Only a fraction of the Additional Uniform Contributions from prior years has been received by the System. As set forth in our February 28, 2017 letter, the FY 2017-18 AUC is \$685 million. The current overall AUC payment schedule is as follows:

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Payment Year	Amount	Comment
FY 2016-17	\$596 million	Collective FY 2016-17 AUC
	\$180 million	Past due and payable immediately by selected employers
	\$776 million	Total due in FY 2016-17
FY 2017-18	\$685 million	Total due in FY 2017-18
FY 2018-19 to FY 2032-33	\$685 million	Estimated amount payable annually, subject to significant change due to annual re-measurement

The reforms enacted through Act 3-2013 are a very long term plan, and constant monitoring will be needed to make sure the System stays on track. Actual experience may turn out better or worse than expected, thus future adjustments may be needed. Receipt of the Additional Uniform Contribution under Act 32 of 2013 (as amended by Act 244 of 2014) is critical to the System's ability to make payments as they come due.

System Experience since Prior Valuation

The approximate actual rate of return on gross assets was 6.70% for 2015-2016. Net assets are negative as of June 30, 2016, so it is no longer mathematically possible to determine a rate of return on net assets during the prior fiscal year.

Our analysis of System experience from June 30, 2015 to June 30, 2016 resulted in a liability gain of \$0.2 billion (e.g. – the original June 30, 2015 Total Pension Liability of \$32.7 billion was expected to increase to \$32.8 billion as of June 30, 2016, and instead decreased to \$32.6 billion prior to the changes in assumptions).

Major sources of gains and losses from the June 30, 2015 valuation to the June 30, 2016 valuation are as follows:

1. \$70 million loss on new entrants.

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2. \$20 million loss on roughly 120 “pop-up” retirees who were not in the prior year census data.
3. \$125 million gain on roughly 4,000 deaths among retirees and beneficiaries.
4. \$30 million loss on roughly 600 active members who retired during the one-year period.
5. \$150 million gain on roughly 3,100 active members terminating employment.

For Item 2, the entire \$20 million is not a loss to the extent that these new retirees were previously included in the deferred vested liability. However, we cannot determine what portion of the 120 retirees emerged from deferred vested status since deferred vested census data is not complete and the deferred vested liability is developed by placing a loading assumption on the Act 447 and Act 1 liabilities to account for deferred vested members.

Change in Assumptions since Prior Valuation

This valuation reflects no change in the investment return assumption of 6.55% per year for GASB 67 purposes. The 6.55% assumption reflects the asset allocation for the non-loan portion of the portfolio that was adopted by the Board during December 2013 as shown below and Milliman's capital market assumptions as of June 30, 2016. In addition, the assumption reflects that loans to members comprise approximately 20% of the portfolio and, as provided by the System, have an approximate return of 9.1% with no volatility.

Asset Class	Target Allocation
Domestic Equity	25%
International Equity	10%
Fixed Income	64%
Cash	1%

Please note that the investment return assumption of 6.55% per year is equal to the highest debt service of the Pension Obligation Bonds. The debt service on the Pension Obligation Bonds ranges from 5.85% to 6.55%.

Under the prior GASB 25/27, the investment return assumption was used to discount all projected Basic System Pension Benefits and System Administered Pension Benefits to determine the Actuarial Accrued Liability. Under GASB 67, the investment return

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assumption is an input that is used in the calculation of the single equivalent interest rate that is used to discount these benefits to determine the Total Pension Liability.

As a result of no change in the investment return assumption, the assumed investment return on the Defined Contribution Hybrid Contribution Accounts (80% of the net investment return assumption) remains at 5.24%.

This valuation reflects a decrease from 3.10% to 3.00% per year in the investment return assumption for GASB 45 purposes. The 3.00% assumption reflects Milliman's capital market assumptions as of June 30, 2016 and assumes that the Commonwealth's General Fund (the assets used to pay the GASB 45 benefits) is invested approximately in 75% cash and 25% short-term bonds.

The projected mortality improvement scale was updated from Scale MP-2015 to Scale MP-2016, which was published by the Society of Actuaries in October 2016.

This valuation also reflects a salary freeze until July 1, 2021 due to the Act 3-2017 four year extension of Act 66-2014. Act 66-2014 mandates a salary freeze only for Central Government employees and mandates savings for public corporations. Due to the Act 66-2014 required savings for public corporations and the current economic conditions in Puerto Rico, the salary freeze has also been assumed for public corporation and municipal employees.

Changes in Methods since the Prior Valuation

There have not been any changes in methods since the prior valuation.

Changes in Plan Provisions since Prior Valuation

Act 3-2017

Act 66-2014 originally implemented a salary freeze for FY 2014-15 through FY 2016-17 for Central Government employees. The recent extension in Act 3-2017 freezes salaries for four additional years, through FY 2020-21.

Due to the Act 66-2014 required savings for public corporations and the current economic conditions in Puerto Rico, the extension of the salary freeze until July 1, 2021 was also

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assumed for public corporation and municipal employees. (This same assumption was used for the original Act 66-2014 salary freeze.)

Act 211-2015

Act 211-2015 is an early retirement incentive program that was passed on December 8, 2015. All employers participating in PRGERS (Central Government, Municipalities and Public Corporations) are eligible to apply to participate in Act 211-2015. Qualification is conditioned upon approval by the Office of Management and Budget ("OMB") of the agency's plan to implement such program and its impact on the agency.

Act 211-2015 states that employers who have outstanding debt with PRGERS must enter into a payment plan that includes using a portion of the employer's savings from Act 211-2015 in order to pay the outstanding debt.

Eligible employees are Act 447 members in PRGERS who have at least 20 years of service at the time of enrollment in the program, and who, except for Police, are not already eligible to retire under Act 447.

Under Act 211-2015, employees who elect to participate in the program will receive a variety of benefits, some of which do not impact PRGERS. The benefits which impact PRGERS are as follows:

1. Contributions to the Defined Contribution Hybrid Program while enrolled in the program equal to 10% of the average compensation as of December 31, 2015, paid in full by the employer until the member reaches age 61. Note that employer contributions will also be paid to the System on this basis.
2. Upon death while enrolled in the program prior to age 61, participation in the program will end and the death benefits payable to survivors if any will be the same as for an active Act 447 member.
3. Upon attainment of age 61, the employee will begin collecting retirement benefits from PRGERS, with a guarantee at the time of retirement that the retirement benefit will be at least 50% of average compensation as of June 30, 2013 (60% for Puerto Rico Police provided the agency pays for the increase from 50% to 60%). Benefits for Coordination Plan members (which decrease upon attainment of Social Security Retirement Age) can never be less than 50% of average compensation as of June 30, 2013. The agency shall pay an additional

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contribution to PRGERS to cover the cost of providing this additional minimum benefit.

Act 170-2016

Act 170-2016 amends Act 211-2015 by expanding the eligible group of members to include additional eligible agencies and additional eligible members in all eligible agencies. Act 170-2016 does not change the benefits provided to the member nor does it change the methodology to calculate the cost for the participating employers.

Commentary on Act 211-2015 and Act 170-2016

To date, over 100 agencies have applied to participate in Act 211-2015 and Act 170-2016, covering approximately 7,400 eligible members. Present value calculations for these members have been prepared throughout fiscal year 2016-2017. Data on OMB approvals and individual retirement elections has not been made available as of this time. No retirements due to Act 211-2015 or Act 170-2016 have occurred as of the June 30, 2016 measurement date of this valuation report. Impacts of Act 211-2105 and Act 170-2016 will be reflected in future valuations when retirements have actually occurred and census data is available.

It is important to understand that savings achieved by employers through staff/payroll reductions can equate to impairment to the System. Act 211-2015 and Act 170-2016 require participating employers to make payments to PRGERS on behalf of each electing member until that member reaches age 61. The Act 211-2015 Statement of Motives includes the following statement:

"In view of all of the foregoing, it is worth noting that the implementation of the Voluntary Pre-Retirement Program shall not have an adverse impact on the treasury of the Commonwealth Retirement System or of the government entities that avail themselves of the Program."

These Acts will reduce the dollar amount of the long-term statutory percent of payroll contributions if these retiring members are not replaced with new employees. This in turn will cause an increase in the AUC (which is a critically important funding source for the System, and of which only a very small portion is actually being collected).

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Fiscal Plan

The *Fiscal Plan for Puerto Rico* (dated March 13, 2017) was approved by the Puerto Rico Fiscal Board (a body created by the enactment of the Puerto Rico Oversight, Management, and Economic Stability Act (“PROMESA”). The approval was conditioned on the Puerto Rico government and the Board reaching an agreement to reduce benefit payments of the following systems by 10% in the aggregate:

- Puerto Rico Government Employees Retirement System
- Puerto Rico Judiciary Retirement System
- Puerto Rico Teachers Retirement System

The details of the reduction methodology, which will determine how the reductions impact each system, are not final at this time. A multi-year delay in implementation is also anticipated. These potential reductions are not reflected in this June 30, 2016 valuation.

Note that the Fiscal Plan does not anticipate future payment of the Act 3-2013 Additional Uniform Contribution (shown earlier as \$776 million for fiscal year 2016-2017 and \$685 million per year for fiscal years 2017-2018 through 2032-2033) contained in current law. Rather, the Fiscal Plan anticipates that PRGERS will be funded on a pay-as-you-go basis once assets are exhausted.

Commentary on Pay-as-you-go (“paygo”) funding

Operating a retirement system on a paygo basis may be conceptually simple, but can be very difficult in practice when the plan sponsor’s current funds and ability to rely on reserves are limited.

While the valuation of PRGERS liabilities for financial reporting purposes is conducted on an annual basis in arrears, statutory contributions and benefit payments vary continuously and respond instantaneously to emerging events.

At a basic level, PRGERS will need to hold some level of operating cash to account for any ongoing timing issues between receipt and disbursement of funds.

The paygo funding needed in a given year is the difference between actual contributions and actual disbursements:

- Contributions to PRGERS are primarily based on statutory percentages of payroll.

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- Disbursements are comprised of benefit payments, administrative expenses, and Pension Obligation Bond debt service.

Contributions and disbursements will experience natural variation due to emerging demographic experience. Contributions and disbursements can also be greatly impacted by specific management decisions, such as an early retirement incentive program or other workforce reduction.

A major issue that needs to be addressed by PRGERS and the Commonwealth is determining what the process of PRGERS budgeting for paygo funding will be. While the System can set an expected paygo amount at the time of budgeting for an upcoming fiscal year, both actual contributions and disbursements can vary from expectations during the fiscal year.

- If the budget is set based on expected contributions and disbursements, in the event of adverse experience during the fiscal year, will PRGERS be able to request additional funds from the sponsoring employers?
- Would PRGERS be permitted to develop a budget request of a paygo amount for the fiscal year that includes a margin to provide a buffer against adverse experience?
 - If so, consideration will need to be given to what level of margin should be included. Scenarios such as higher retirement activity and/or lower mortality rates could be modeled to provide a range of potential adverse outcomes.
 - Increased security comes at increased cost, and no specific margin guarantees protection against all circumstances.
- How would the impacts of specific management decisions be handled?
 - For instance, assume that the fiscal year paygo amount appears to be sufficient as of mid-year.
 - Then a reduction in workforce is announced, with an effective date of March 31.
 - In the final three months of the fiscal year, statutory rate contribution income will be lower than expectations due to lower payroll.
 - In the final three months of the fiscal year, disbursements will be higher than expected as some members will take a refund of contributions upon termination, and other members who are retirement eligible will commence their annuity earlier than they had been expected to do so.

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There are certainly many more operational details to be considered. We provide this limited commentary in order to point out that paygo operation is a complex issue that requires careful thought and planning, constant monitoring, and the ability to respond to emerging events quickly.

Overview of Recent Significant Changes in Plan Provisions

Act 3-2013

Act 3-2013, enacted on April 4, 2013, is a broad ranging dynamic 50-year plan with several significant changes that will eventually result in all active and retired members participating in a member funded hybrid plan. The focus of Act 3-2013 is on cash flow for roughly the first half of the period, followed by a “catch-up” period for the second half. During the first half of the 50-year period, the combination of benefit changes and additional funding are designed to provide enough cash such that the System is expected to be able to pay full benefits and Pension Obligation Bond (“POB”) debt service on schedule. During this time the System is expected to have gross assets on hand that are less than the outstanding POB liability. During the second half of the 50-year period, continued high employer contribution rates will be used to “catch up” and fill in member notional accounts with real assets. A summary of the plan provisions reflecting Act 3 is included in Section VII.

Act 32-2013 (as amended by Act 244-2014)

In addition to Act 3-2013 discussed above, a separate law was passed, Act 32-2013 (as amended by Act 244-2014), which requires an additional annual contribution from the Commonwealth for 20 years. The initial additional annual contribution is defined as \$120 million, and with subsequent amounts adjusted as necessary for the System’s gross assets to remain above \$1 billion.

Early Retirement Incentive Contributions

The early retirement incentive contributions are reflected in the System’s financial statements in the year of the incentive even though these contributions are typically scheduled to be paid by the employer to the System over many years. As directed by the System, the actual employer contributions for GASB 67 accounting reflect early

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retirement incentive contributions on an accrual basis to match the amounts shown in the System's financial statements.

GASB Pension Accounting Information

GASB has issued two new statements: Statement No. 67, *"Financial Reporting for Pension Plans"* (GASB 67), and Statement No. 68, *"Accounting and Financial Reporting for Pensions"* (GASB 68). GASB 67 and 68 replace the prior GASB 25 and 27 respectively. The effective date of GASB 67 (which applies to financial reporting on a plan basis) was the fiscal year ending June 30, 2014. The effective date of GASB 68 (which applies to financial reporting by contributing employers) is the fiscal year ending June 30, 2015.

Pension accounting results in Section IV of this report have been prepared under GASB 67 parameters to determine a Total Pension Liability at the end of the fiscal year. The Net Fiduciary Position is then subtracted to arrive at the Net Pension Liability at the end of the fiscal year. The Net Pension Liability reflects the full amount of the unfunded liability, and thus can be significantly volatile from year to year.

GASB OPEB Accounting Information

Accounting results for the Medical Insurance Plan Contribution shown in Section V of this report are calculated under Governmental Accounting Standards Board Statement No. 45, *"Accounting and Financial Reporting by Employers for Postemployment Benefits Other Than Pensions"* (GASB 45). (Note that the Medication Bonus has been included in the GASB 67 results as a Pension Benefit because members can receive the bonus without submitting documentation to substantiate medication expenses.)

There are no member or employer contributions on behalf of the Medical Insurance Plan Contribution. This benefit is financed on a pay-as-you-go basis from the General Fund of the Commonwealth of Puerto Rico. Since this benefit is not funded in advance, the ARC for this benefit has been calculated based on an assumed investment return rate of 3.00% based on the asset allocation of the Commonwealth's general assets that are used to pay this benefit.

We note that, as a cost-sharing multiple employer plan, PRGERS is not required to report a Net OPEB Obligation. In accordance with paragraph 23 of GASB 45, the employers

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that participate in the plan should recognize annual OPEB expense equal to their contractually required contributions to the plan. The employers do not have an Annual Required Contribution (ARC) or a Net OPEB Obligation. (PRGERS reports an ARC for the system as a whole, not separate ARCs for the individual employers.) Any difference between contributions required and contributions made would produce an OPEB liability or asset at the employer level.

Note that GASB issued GASB 75 in June 2015 which makes changes to GASB 45 similar to how GASB 25/27 were updated by GASB 67/68. GASB 75 is effective beginning with the 2017-2018 fiscal year, unless earlier adoption occurs.

GASB 67 Projection to Determine Date of Depletion (if any)

GASB 67 requires that a projection be performed for the System to determine a date of depletion, if any, and the resulting effective discount rate. This complex projection is used to determine the point at which the System is expected to deplete assets per GASB 67. The analysis includes a projection of member and employer contributions, benefit payments, and administrative expenses attributable to current members. Amounts attributable to members hired in the future are excluded except to the extent that employer contributions exceed the cost of benefits for those future members. *Because the date of depletion projection does not incorporate all projected cash inflows to and outflows from the System, the results will differ from those in a comprehensive cash flow projection that models all inflows and outflows. In other words, the GASB 67 date of depletion is not the same as the date that the System would be expected to exhaust assets.*

Once a depletion date has been determined, it is used as an input in the determination of the accounting liability as follows:

- The present value of all future benefits for GASB 67 accounting purposes is determined as follows:
 - For projected benefit payments occurring prior to the date of depletion, the discount rate is based on the System's expected return on assets.
 - For projected benefit payments occurring after the date of depletion, the discount rate is based on a tax-free municipal bond index.
- Based on the resulting present value of all future benefits for GASB 67 accounting purposes, a single equivalent interest rate can be imputed that yields the same present value.

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PUERTO RICO GOVERNMENT EMPLOYEES RETIREMENT SYSTEM

SECTION I – SUMMARY

GASB 67 and its implementation guide do not address the mechanics of the date of depletion projection when the retirement system is the issuer of Pension Obligation Bonds (POBs) – e.g. whether the date of depletion projection should be performed on a gross assets or net assets basis. Typically, the governmental sponsor issues the POBs and contributes the proceeds to the retirement system. However, PRGERS issued the POBs and is responsible for repaying the interest and principal on the bonds. As directed by the Treasury Department, the Government Development Bank, and the System (after consultation with the auditor) at the outset of GASB 67, the asset basis for the date of depletion projection is the System's net assets (the gross assets less the Pension Obligation Bond proceeds). On this basis, net assets were exhausted in the 2014-2015 fiscal year and no calculation needs to be performed, as the tax-free municipal bond index applies in all years, and is thus the single equivalent interest rate that is used as the discount rate in the determination of the Total Pension Liability.

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PUERTO RICO GOVERNMENT EMPLOYEES RETIREMENT SYSTEM

SECTION II - SYSTEM ASSETS

A. Statement of Fiduciary Net Position

	<u>June 30, 2015</u>	<u>June 30, 2016</u>
Assets		
Cash and cash equivalents	363,047,000	672,966,000
Receivables and prepaid expenses:		
Accounts receivable	381,160,000	337,196,000
Prepaid bond cost	<u>0</u>	<u>0</u>
Total receivables	381,160,000	337,196,000
Investments:		
Bonds and notes	794,761,000	353,683,000
Nonexchange commingled trust funds	467,823,000	0
Stocks	1,000	219,633,000
Investments in limited partnerships	54,026,000	0
Total loans to plan members	607,617,000	597,445,000
Alternative investment	0	50,458,000
COFINA investment	0	93,484,000
Other assets	<u>785,000</u>	<u>754,000</u>
Total investments	1,925,013,000	1,315,457,000
Invested securities lending cash collateral	80,071,000	19,754,000
Capital assets	10,521,000	9,733,000
Total assets	2,759,812,000	2,355,106,000
Liabilities		
Bonds payable	3,119,325,000	3,148,997,000
Securities lending cash collateral	80,071,000	19,754,000
Other liabilities	<u>165,646,000</u>	<u>413,857,000</u>
Total liabilities	3,365,042,000	3,582,608,000
Net position restricted for pensions	(605,230,000)	(1,227,502,000)

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PUERTO RICO GOVERNMENT EMPLOYEES RETIREMENT SYSTEM

SECTION II - SYSTEM ASSETS

B. Statement of Changes in Fiduciary Net Position

	<u>June 30, 2016</u>
Additions	
a. Contributions	
Employer Contributions	\$562,980,000
Member Contributions	333,609,000
Early Retirement Programs	3,146,000
Interest on cultural loans	452,000
Appropriations for Special Laws	<u>194,239,000</u>
Total Contributions	\$1,094,426,000
b. Investment Income	
Interest Income	\$59,764,000
Dividend Income	277,000
Net Appreciation of Investments	3,964,000
Other Income	52,759,000
Investment Related Expenses	<u>(2,631,000)</u>
Net Investment Income	\$114,133,000
Total Additions	\$1,208,559,000
Deductions	
Refund of Contributions	\$34,937,000
Annuities and Death Benefits	1,335,975,000
Special Law Benefits	194,240,000
Interest on cultural loans	452,000
Administrative Expenses	25,949,000
Other Expenses	43,067,000
Cost of Bonds	<u>196,211,000</u>
Total deductions	\$1,830,831,000
Net Increase (Decrease)	(\$622,272,000)
Net position restricted for pensions	
Beginning of year (June 30, 2015)	(605,230,000)
End of year (June 30, 2016)	(1,227,502,000)

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PUERTO RICO GOVERNMENT EMPLOYEES RETIREMENT SYSTEM

SECTION II - SYSTEM ASSETS

C. Estimated Annual Rate of Return for year ending June 30, 2016

	<u>Gross Asset Basis</u>	<u>Net Asset Basis</u>
1. Value of Assets as of June 30, 2015	\$2,514,095,000	(\$605,230,000)
2. Total Contributions	1,094,426,000	1,094,426,000
3. Benefit Payments and Expenses	1,830,831,000	1,830,831,000
4. Value of Assets as of June 30, 2016	1,921,495,000	(1,227,502,000)
5. Non-Investment Increment: (2) - (3)	(736,405,000)	(736,405,000)
6. Investment Increment: (4) - (1) - (5)	143,805,000	114,133,000
7. Time Weighted Value: (1) +.5 * (5)	2,145,892,500	(973,432,500)
8. Estimated Annual Rate of Return: (6) / (7)	6.70%	N/A

D. Estimated Historical Rates of Return

<u>Plan Year Ending</u>	<u>Gross Asset Basis</u>	<u>Net Asset Basis</u>
June 30, 2016	6.70%	N/A
June 30, 2015	3.06%	N/A
June 30, 2014	8.46%	94.73%
June 30, 2013	7.88%	31.38%
June 30, 2012	7.39%	22.31%
5-year Compounded Annual Return	6.68%	N/A

Prior year returns were calculated by Milliman using the methodology in Section D above, based on asset amounts and cash flows shown in prior valuation reports.

The rates of return determined on a gross asset basis are for illustrative purposes only and assume non-investment cash flows are the same as that determined on a net asset basis. Because of the significant amount of Pension Obligation Bond proceeds that are currently invested (approximately \$3 billion), the net asset returns are significantly larger than the returns on a gross asset basis.

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PUERTO RICO GOVERNMENT EMPLOYEES RETIREMENT SYSTEM

SECTION III - MANAGEMENT INFORMATION

A. Allocation of Liability by Pension Law and System Entity as of June 30, 2016

	<u>GASB 67 Total Pension Liability for:</u>			Actuarial Accrued Liability for GASB 45 Benefits
	<u>Basic System Benefits</u>	<u>System Administered Benefits</u>	<u>Basic System and System Administered Benefits</u>	
Government				
Act 447	\$15,132,071,000	\$1,436,024,000	\$16,568,095,000	\$797,931,000
Act 1	3,711,954,000	323,406,000	4,035,360,000	102,232,000
System 2000 / Act 3	<u>1,773,711,000</u>	<u>455,737,000</u>	<u>2,229,448,000</u>	<u>2,012,000</u>
	20,617,736,000	2,215,167,000	22,832,903,000	902,175,000
Public Corporations				
Act 447	7,007,932,000	558,704,000	7,566,636,000	238,129,000
Act 1	1,224,951,000	53,182,000	1,278,133,000	29,561,000
System 2000 / Act 3	<u>699,036,000</u>	<u>2,375,000</u>	<u>701,411,000</u>	<u>599,000</u>
	8,931,919,000	614,261,000	9,546,180,000	268,289,000
Municipalities				
Act 447	2,250,356,000	220,887,000	2,471,243,000	147,482,000
Act 1	856,323,000	68,413,000	924,736,000	31,126,000
System 2000 / Act 3	<u>610,649,000</u>	<u>47,161,000</u>	<u>657,810,000</u>	<u>432,000</u>
	3,717,328,000	336,461,000	4,053,789,000	179,040,000
Total				
Act 447	24,390,359,000	2,215,616,000	26,605,975,000	1,183,542,000
Act 1	5,793,227,000	445,002,000	6,238,229,000	162,919,000
System 2000 / Act 3	<u>3,083,396,000</u>	<u>505,274,000</u>	<u>3,588,670,000</u>	<u>3,043,000</u>
	\$33,266,983,000	\$3,165,890,000	\$36,432,873,000	\$1,349,503,000

(Numbers shown may not add due to rounding.)

System Administered Benefits for System 2000 and Act 3 members are enhanced death and disability benefits for hazardous duty employees covered by Act 127 and the related bonus benefits for these members. GASB 45 benefits are the medical insurance plan contributions for these members.

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PUERTO RICO GOVERNMENT EMPLOYEES RETIREMENT SYSTEM

SECTION III - MANAGEMENT INFORMATION

B. Accumulated Member Contributions for Active Members as of July 1, 2015

	<u>Contribution Account Balances</u>
Government	
Act 447	\$535,270,000
Act 1	1,070,842,000
System 2000 / Act 3	<u>731,138,000</u>
	2,337,250,000
Public Corporations	
Act 447	207,937,000
Act 1	307,483,000
System 2000 / Act 3	<u>275,887,000</u>
	791,307,000
Municipalities	
Act 447	84,679,000
Act 1	238,382,000
System 2000 / Act 3	<u>271,128,000</u>
	594,189,000
Total	
Act 447	827,886,000
Act 1	1,616,707,000
System 2000 / Act 3	<u>1,278,153,000</u>
	3,722,746,000
Market Value of Assets as of June 30, 2016	(1,227,502,000)

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PUERTO RICO GOVERNMENT EMPLOYEES RETIREMENT SYSTEM

SECTION IV – GASB 67 ACCOUNTING INFORMATION

A. Projection to Determine GASB 67 Date of Depletion (if any)

As directed by the System, the asset basis for the date of depletion projection is the System's net assets (the gross assets less the Pension Obligation Bond proceeds). On this basis, net assets were exhausted in the 2014-2015 fiscal year and no projection was needed to be performed as of June 30, 2016, as the tax-free municipal bond index applies in all years, and is thus the single equivalent interest rate that is used as the discount rate in the determination of the Total Pension Liability.

The tax free municipal bond index of 2.85% as of June 30, 2016 was used as the discount rate in the determination of the Total Pension Liability as of June 30, 2016.

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PUERTO RICO GOVERNMENT EMPLOYEES RETIREMENT SYSTEM

SECTION IV - GASB 67 ACCOUNTING INFORMATION

B. Net Pension Liability

Net Pension Liability	<u>June 30, 2015</u>	<u>June 30, 2016</u>
Total pension liability	\$32,669,162,000	\$36,432,873,000
Fiduciary net position	(605,230,000)	(1,227,502,000)
Net pension liability	33,274,392,000	37,660,375,000
Fiduciary net position as a % of total pension liability	-1.85%	-3.37%
Covered payroll	\$3,319,280,000	\$3,344,382,000
Net pension liability as a % of covered payroll	1002.46%	1126.08%

The total pension liability was determined by an actuarial valuation as of July 1, 2015, calculated based on the discount rate and actuarial assumptions as shown in Section VIII and was then projected forward to June 30, 2016. There have been no significant changes between the valuation date of July 1, 2015 and the fiscal year end. Any significant changes during this period must be reflected as prescribed by GASB 67. Covered Payroll is as of July 1, 2015.

Discount Rate

The plan's fiduciary net position was not projected to be available to make all projected future benefit payments of current active and inactive employees. Therefore, the discount rate for calculating the total pension liability is equal to the single equivalent rate that results in the same actuarial present value as the long-term expected rate of return applied to benefit payments, to the extent that the plan's fiduciary net position is projected to be sufficient to make projected benefit payments, and the municipal bond rate applied to benefit payments, to the extent that the plan's fiduciary net position is not projected to be sufficient.

	<u>June 30, 2015</u>	<u>June 30, 2016</u>
Discount rate	3.80%	2.85%
Long-term expected rate of return net of investment expense	6.55%	6.55%
Municipal bond rate *	3.80%	2.85%

* Bond Buyer General Obligation 20-Bond Municipal Bond Index

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PUERTO RICO GOVERNMENT EMPLOYEES RETIREMENT SYSTEM

SECTION IV - GASB 67 ACCOUNTING INFORMATION

C. GASB 67 Benefit Obligations as of June 30, 2016

	<u>Basic System Benefits</u>	<u>System Administered Benefits</u>	<u>Total</u>
1. Projected Benefits Payable to Retirees and Beneficiaries			
Retirees	\$19,244,136,000	\$1,600,151,000	\$20,844,287,000
Disabled Members	1,196,610,000	457,674,000	1,654,284,000
Beneficiaries	<u>722,868,000</u>	<u>137,724,000</u>	<u>860,592,000</u>
Total	21,163,614,000	2,195,549,000	23,359,163,000
2. Projected Benefits Payable to Vested Terminated Members	1,423,209,000	100,069,000	1,523,278,000
3. Actuarial Accrued Liability for Active Members	10,595,160,000	870,272,000	11,465,432,000
4. Return of Contributions due to former Members	85,000,000	0	85,000,000
5. Total Pension Liability as of June 30, 2016: (1) + (2) + (3) + (4)	\$33,266,983,000	\$3,165,890,000	\$36,432,873,000

The above liabilities are for Basic System Benefits and selected System Administered Benefits. See Section I for more information.

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PUERTO RICO GOVERNMENT EMPLOYEES RETIREMENT SYSTEM

SECTION IV - GASB 67 ACCOUNTING INFORMATION

D. Changes in Net Pension Liability

	Total Pension Liability (a)	Increase (Decrease) Plan Fiduciary Net Position (b)	Net Pension Liability (a) - (b)
Changes in Net Pension Liability			
Balances as of June 30, 2015	\$32,669,162,000	(\$605,230,000)	\$33,274,392,000
Changes for the year:			
Service cost	496,732,000		496,732,000
Interest on total pension liability	1,230,843,000		1,230,843,000
Effect of plan changes	0		0
Effect of economic/demographic (gains) or losses	(252,405,000)		(252,405,000)
Effect of assumptions changes or inputs	3,853,693,000		3,853,693,000
Benefit payments	(1,565,152,000)	(1,565,152,000)	0
Administrative expenses		(25,949,000)	25,949,000
Other expenses		(43,067,000)	43,067,000
Cost of bonds		(196,211,000)	196,211,000
Member contributions		333,609,000	(333,609,000)
Net investment income		114,133,000	(114,133,000)
Employer contributions		760,365,000	(760,365,000)
Balances as of June 30, 2016	\$36,432,873,000	(\$1,227,502,000)	\$37,660,375,000

E. Sensitivity Analysis

The following presents the net pension liability of PRGERS, calculated using the discount rate of 2.85%, as well as what the System's net pension liability would be if it were calculated using a discount rate that is 1 percentage point lower (1.85%) or 1 percentage point higher (3.85%) than the current rate.

	1% Decrease 1.85%	Current Discount Rate 2.85%	1% Increase 3.85%
Total pension liability	\$41,973,101,000	\$36,432,873,000	\$31,922,005,000
Fiduciary net position	(1,227,502,000)	(1,227,502,000)	(1,227,502,000)
Net pension liability	43,200,603,000	37,660,375,000	33,149,507,000

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PUERTO RICO GOVERNMENT EMPLOYEES RETIREMENT SYSTEM

SECTION V - GASB 45 ACCOUNTING INFORMATION

A. Benefit Obligations

1. Projected Benefits Payable to Retirees and Beneficiaries:	
Retirees	\$1,174,670,000
Disabled Members	174,833,000
Beneficiaries	<u>0</u>
Total	1,349,503,000
2. Projected Benefits Payable to Vested Terminated Members:	0
3. Actuarial Accrued Liability for Active Members	0
4. Total Actuarial Accrued Liability as of June 30, 2016:	1,349,503,000
5. Total Employer Normal Cost as of December 31, 2016:	0

The above liabilities are for the Medical Insurance Plan Contribution portion of the System Administered Benefits. See Section I for more information.

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PUERTO RICO GOVERNMENT EMPLOYEES RETIREMENT SYSTEM

SECTION V - GASB 45 ACCOUNTING INFORMATION

B. Development of Unfunded Actuarial Accrued Liability and Amortization Payment Payable as of December 31, 2016:

1. Actuarial Accrued Liability as of June 30, 2016:	\$1,349,503,000
2. Actuarial Value of Assets as of June 30, 2016:	0
3. Unfunded Actuarial Accrued Liability as of June 30, 2016: (1) - (2)	1,349,503,000
4. Amortization Period in years	16
5. Amortization Factor at beginning of year	12.9379
6. Amortization Amount Payable as of December 31, 2016: [(3) / (5)] * (1.0300 ^ 0.5)	\$105,859,000

C. Development of Annual Required Contribution

1. Total Employer Normal Cost as of December 31, 2016:	\$0
2. Amortization Payment as of December 31, 2016:	105,859,000
3. Annual Required Contribution*: (1) + (2)	105,859,000

* Assumes payments made throughout the year.

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PUERTO RICO GOVERNMENT EMPLOYEES RETIREMENT SYSTEM

SECTION V - GASB 45 ACCOUNTING INFORMATION

D. Development of Net OPEB Obligation as of June 30, 2016

1. Net OPEB Obligation as of June 30, 2015	\$201,347,000
2. Annual OPEB Cost for Fiscal Year 2015 - 2016	98,565,000
3. Fiscal Year 2015 - 2016 Employer Contribution	96,452,000
4. Net OPEB Obligation as of June 30, 2016: (1) + (2) - (3)	\$203,460,000

E. Development of Fiscal Year 2016 - 2017 Annual OPEB Cost

1. Annual Required Contribution	\$105,859,000
2. Interest on Net OPEB Obligation as of June 30, 2016	6,104,000
3. Adjustment to the Annual Required Contribution	16,198,000
4. Fiscal Year 2016 - 2017 Annual OPEB Cost: (1) + (2) - (3)	\$95,765,000

The above liabilities are for the Medical Insurance Plan Contribution portion of the System Administered Benefits. See Section I for more information.

The above Net OPEB Obligation and Annual OPEB Cost are determined as if PRGERS was a single employer plan instead of a cost-sharing multiple employer plan. See Section I for more information.

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PUERTO RICO GOVERNMENT EMPLOYEES RETIREMENT SYSTEM

SECTION V - GASB 45 ACCOUNTING INFORMATION

F. Schedule of Employer Contributions

<u>Year Ended June 30</u>	<u>Actual Employer Contribution</u>	<u>Annual Required Contribution</u>	<u>Percent Contributed</u>
2017 *	\$103,751,000	\$105,859,000	98.01%
2016	96,452,000	107,739,000	89.52
2015	97,374,000	103,878,000	93.74
2014	102,085,000	88,508,000	115.34
2013	91,823,000	154,999,000	59.24
2012	94,664,000	133,654,000	70.83
2011	93,851,000	129,395,000	72.53

- * Actual Employer Contribution for the year ended June 30, 2017 assumes:
- contribution of \$103.751 million for Special Law OPEB benefits.

The above liabilities are for the Medical Insurance Plan Contribution portion of the System Administered Benefits. See Section I for more information.

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PUERTO RICO GOVERNMENT EMPLOYEES RETIREMENT SYSTEM

SECTION V - GASB 45 ACCOUNTING INFORMATION

G. Schedule of Funding Progress

	(a)	(b)	(c)=(b)-(a)	(d)=(a)/(b)	(e)	(f)=(c)/(e)
Actuarial Valuation <u>Date</u>	Actuarial Value of <u>Assets</u>	Accrued <u>Liability</u>	Unfunded <u>Liability</u>	Funded <u>Ratio</u>	Annual <u>Salary</u>	Unfunded Liability as a % of Annual <u>Salary</u>
06/30/2016	\$0	\$1,349,503,000	\$1,349,503,000	0.0%	\$3,344,382,000	40.4%
06/30/2015	0	1,428,788,000	1,428,788,000	0.0%	3,319,280,000	43.0%
06/30/2014	0	1,438,475,000	1,438,475,000	0.0%	3,489,096,000	41.2%
06/30/2013	0	1,482,879,000	1,482,879,000	0.0%	3,489,096,000	42.5%
06/30/2012	0	2,120,970,000	2,120,970,000	0.0%	3,570,339,000	59.4%
06/30/2011	0	1,758,389,000	1,758,389,000	0.0%	3,666,402,000	48.0%

The above liabilities are for the Medical Insurance Plan Contribution portion of the System Administered Benefits. See Section I for more information.

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PUERTO RICO GOVERNMENT EMPLOYEES RETIREMENT SYSTEM

SECTION V - GASB 45 ACCOUNTING INFORMATION

H. Additional Information

The following information was used to determine the Annual Required Contribution for the fiscal year ending June 30, 2017. The ARC is for the Medical Insurance Plan Contribution. See Section I for more information.

Valuation Date:	June 30, 2016
Actuarial Cost Method:	Entry Age Normal
Amortization method:	18 years closed (beginning July 1, 2014), level dollar
Remaining Amortization Period:	16 years
Asset valuation method:	not applicable
Assumptions:	
Investment rate of return	3.00%
Projected Salary Increases	not applicable
Projected Payroll Growth	not applicable
Inflation	not applicable
Cost of Living Adjustments	not applicable

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PUERTO RICO GOVERNMENT EMPLOYEES RETIREMENT SYSTEM

SECTION VI - CENSUS DATA

A. Summary of Member Data as of July 1, 2015

	Act 447	Act 1	System 2000 / Act 3	Total
Active Members				
Count	15,811	38,263	65,605	119,679
Average Age	54.6	50.0	42.7	46.6
Average Salary	\$33,978	\$30,688	\$24,891	\$27,945
Average Creditable Service	28.0	20.3	9.5	15.4
Retired Members				
Count	84,658	10,048	273	94,979
Average Age	69.7	66.2	67.8	69.3
Average Monthly Basic System Benefit	\$1,179	\$412	\$758	\$1,096
Average Monthly System Administered Benefit	\$68	\$51	\$16	\$66
Disabled Members				
Count	13,021	2,351	72	15,444
Average Age	71.0	64.5	54.2	69.9
Average Monthly Basic System Benefit	\$499	\$515	\$853	\$503
Average Monthly System Administered Benefit	\$133	\$63	\$9	\$121
Beneficiaries in payment				
Count	14,261	328	81	14,670
Average Age	74.5	71.2	62.5	74.4
Average Monthly Basic System Benefit	\$380	\$481	\$997	\$386
Average Monthly System Administered Benefit	\$56	\$20	\$8	\$55

Basic System Benefit and System Administered Benefit amounts shown above are for pension benefits, including minimum benefits up to \$500 per month and COLAs, and excludes benefits payable at a later date to Law 70 Section 4B retirees. Special Law "bonus" benefits are not reflected.

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SECTION VII – SUMMARY OF PRINCIPAL PLAN PROVISIONS **AS OF JUNE 30, 2016**

This summary of plan provisions is intended only to describe the essential features of the plan for valuation purposes. All eligibility requirements and benefit amounts shall be determined in strict accordance with the plan document itself.

Act 3 of 2013, in conjunction with other recent funding and design changes, provided for a comprehensive pension redesign of PRGERS. This summary details the provisions under Act 3.

Certain provisions are different for the three groups of members who entered PRGERS prior to July 1, 2013 as described below.

- Act 447 members are generally those members hired before April 1, 1990.
- Act 1 members are generally those members hired on or after April 1, 1990 and on or before December 31, 1999.
- System 2000 members are generally those members hired on or after January 1, 2000 and on or before June 30, 2013.

1. Type of Plan

The System is a contributory, hybrid defined benefit plan.

2. Effective Date

The System was established in 1951 by Act 447 to be effective January 1, 1952. The plan was last amended under Act 3, approved April 4, 2013.

3. Eligibility for Membership

Members of the Employees Retirement System of the Government of Puerto Rico and its Instrumentalities include all regular full-time and non-municipal temporary employees who are not contributing to other Retirement Systems (Articles 1-104 and 1-105). Employees include those in the following categories:

- Police of Puerto Rico,
- Firefighters of Puerto Rico,
- Elective officers of the People of Puerto Rico and the employees of the Legislature,
- Officers and employees of the Government of Puerto Rico,

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- Officers and employees of public enterprises,
- Officers and employees, including mayors, of the municipalities, and
- Irregular personnel fulfilling the requirements of regular employee.

Membership is mandatory, except for the Governor of Puerto Rico, Government Secretaries, heads of public agencies and instrumentalities, the Governor's aides, gubernatorial appointees of commissions and boards, members of the Legislature, the Controller of Puerto Rico, the employees of the Agricultural Extension Service of the U.P.R., the Ombudsman and the Commonwealth Election Board employees (Article 1-105). In addition, membership is optional for eligible employees while working and residing outside the territorial limits of the Commonwealth of Puerto Rico (Act 112 of 2004).

4. Definitions

- a. Fiscal Year: A Fiscal Year is a 12-month period beginning on July 1 and ending on June 30 (Article 1-104).
- b. General Fund: The General Expenses Budget of the Government of the Commonwealth of Puerto Rico.
- c. Government of Puerto Rico or Government: The Government of the Commonwealth of Puerto Rico, its departments, divisions, bureaus, offices, agencies and dependencies (Article 1-104).
- d. Public Enterprise: Any government instrumentality of the People of Puerto Rico (Article 1-104).
- e. Municipality: The Municipality of San Juan (Article 1-104).
- f. Employer: The Government of Puerto Rico, any public enterprise that has elected to participate in the System, or any municipality that has elected to participate in the System (Articles 1-104 and 1-110).
- g. Employee: Any officer or employee of the Employer regularly employed on a full time basis (Article 1-104).

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- h. Creditable Service for Act 447 members: The years and months of plan participation, during which contributions have been made, beginning on the later of date of hire or January 1, 1952 and ending on date of separation from service. For purposes of calculating Creditable Service, the following schedule shall apply:

Service During a Fiscal Year	Creditable Service Earned
15 days during the same month	1 month
2 months and 15 days to 5 months and 14 days	$\frac{1}{2}$ year
5 months and 15 days to 8 months and 14 days	$\frac{3}{4}$ year
8 months and 15 days to 12 months	1 year

Note: All of the days have to be during the same month.

Months in which less than 15 days of service are rendered do not count towards Creditable Service. (Article 1-106)

In general, Creditable Service may be earned for any period of employment during which no contributions were made if Accumulated Contributions for such periods are paid to the System. The same rules hold for rehired employees who previously received a refund of Accumulated Contributions at separation. (Article 1-106)

Creditable Service also includes purchased service, if any (Article 1-106).

- i. Creditable Service for Act 1 members: The years and completed months of plan participation, during which contributions have been made, beginning on date of hire and ending on date of separation from service. (Articles 1-106 and 2-109) For purposes of calculating Creditable Service, the following schedule shall apply:

Service During a Fiscal Year	Creditable Service Earned
Less than 3 months	None
3 to 5 months	$\frac{1}{2}$ year
6 to 8 months	$\frac{3}{4}$ year
9 months or more	1 year

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In general, Creditable Service may be earned for any period of employment during which no contributions were made if Accumulated Contributions for such periods are paid to the System. The same rules hold for rehired employees who previously received a refund of Accumulated Contributions at separation. (Article 1-106)

Creditable Service also includes purchased service, if any (Article 1-106).

- j. Compensation: The gross cash compensation, excluding bonuses and overtime, upon which contributions by a Member to the Fund are based (Article 1-104).
- k. Average Compensation for Act 447 members: The average of the 3 highest years (36 highest months) of compensation that the participant has received for Creditable Service (Article 1-104).
- l. Average Compensation for Act 1 members: The average of the last 5 years of compensation that the participant has received for Creditable Service. If annual compensation in the averaging period exceeds by more than 10% the annual compensation in the immediately preceding year, the compensation in excess of said 10% shall not be included in the calculation of Average Compensation. (Article 2-108)
- m. Contributions: The amount deducted from the compensation of a Member and the employer (Section 781).
- n. Regular Interest: The interest rate as prescribed by the Board of Trustees (Article 1-104). The rate of 2.50% has always been in effect.
- o. Accumulated Contributions: The sum of all amounts deducted from the compensation of a Member prior to July 1, 2013 with Regular Interest (Article 1-104).
- p. Actuarial Equivalent: Equality in value such that the present value of the amount under any form of payment is essentially the same as the present value of the amount under the normal form of annuity payment for single participants. Actuarially Equivalent factors are determined based on annuity and mortality tables

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adopted by the Board of Trustees based on the system's experience and in accordance with the recommendations of the actuary.

For purposes of converting the Defined Contribution Hybrid Contribution Account to a lifetime annuity, the current factors adopted by the Board are the single life annuity factors using an interest rate of 4% and the RP-2000 Healthy Annuitant Mortality Table for ages 50 and over and the RP-2000 Employee Mortality Table for ages under 50, projected to 2025 using Scale AA and blended 50% male / 50% female.

- q. Public Officers in High-Risk Positions: The Commonwealth of Puerto Rico Police, the Municipal Police, the Commonwealth Firefighter Corps, the Municipal Firefighter Corps, and the Custody Officers Corps.
- r. Social Security Retirement Age (SSRA): The Social Security Retirement Age varies based on the year of birth as indicated in the table below.

Year of Birth	Social Security Retirement Age
1937 or earlier	65 years
1938	65 years and 2 months
1939	65 years and 4 months
1940	65 years and 6 months
1941	65 years and 8 months
1942	65 years and 10 months
1943 to 1954	66 years
1955	66 years and 2 months
1956	66 years and 4 months
1957	66 years and 6 months
1958	66 years and 8 months
1959	66 years and 10 months
1960 and later	67 years

- s. Retirement Savings Account: The individual retirement account established for each member of System 2000 (Article 1-104). Each member has a nonforfeitable right to the value of his Retirement Savings Account (Article 3-107).

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- t. Credits to Retirement Savings Account: The credits to the retirement savings account include (1) any initial transfer balance for transferred participants, (2) contributions of the members to System 2000, and (3) the investment yield for each semester of the fiscal year based on the investment alternatives elected by the member (Article 3-107).
- u. Investment Alternatives for Retirement Savings Account: System 2000 members could choose to allocate their Retirement Savings Account, in multiples of 10%, to the following investment options prior to July 1, 2013. Changes in allocation could have been made annually, effective each July 1.
 - i. Fixed income – The yield is equal to the average monthly yield of the Two-Year Constant Maturity Treasuries during each semester of the fiscal year.
 - ii. System's investment portfolio – The yield is equal to 90% (75% prior to July 1, 2004) of the investment portfolio yield of the System during each semester of each fiscal year minus management fees such as fees payable to administrators of the portfolio.
 - iii. Other alternatives adopted by the Board of the System.
- v. Defined Contribution Hybrid Contribution Account: The individual account established for each active member as of July 1, 2013 and for each future member thereafter. Each member has a nonforfeitable right to their contributions to the Defined Contribution Hybrid Contribution Account and, for the System 2000 members, the initial transfer of their Retirement Savings Account as of June 30, 2013.
- w. Credits to Defined Contribution Hybrid Contribution Account: The credits to the retirement savings account include (1) the Retirement Savings Account as of June 30, 2013 for System 2000 members, (2) contributions by all members after June 30, 2013 to PRGERS, and (3) the investment yield for each semester of the fiscal year as determined by the Board. The investment yield determined by the Board shall never be less than 80% of the investment portfolio yield of the System during each semester of each fiscal year minus management fees such as, but not limited to, fees payable to administrator of the portfolio, safekeeping of securities and investment counseling.

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5. Coordination with Social Security for Act 447 members: Except for police, mayors and employees of the Agricultural Extension Service of the U.P.R., participants may elect to coordinate coverage under the System with Federal Social Security by selecting the lower of two contribution options. Those participants selecting Option (1), the Coordination Plan, are subject to a benefit recalculation upon attainment of Social Security Retirement Age. Those participants selecting Option (2), the Supplementation Plan, will continue to receive the same benefits for life, without any adjustments at SSRA. At any time up to retirement, participants may change from Option (1) to Option (2) by making a contribution including interest to the System, retroactive to the later of July 1, 1968 or the date of plan entry, that will bring their career Accumulated Contributions to the Option (2) level. All police, mayors and employees of the Agricultural Extension Service of the U.P.R. are covered under Option (2), the Supplementation Plan.

6. Retirement Benefits

a. Eligibility for Act 447 members: Act 447 members who were eligible to retire as of June 30, 2013 would continue to be eligible to retire at any time. Prior to July 1, 2013, Act 447 members could retire upon (1) attainment of age 55 with 25 years of Creditable Service, (2) attainment of age 58 with 10 years of Credited Service, (3) any age with 30 years of Creditable Service, (4) for Public Officers in High Risk Positions, attainment of age 50 with 25 years of Creditable Service, and (5), for Mayors, attainment of age 50 with 8 years of Creditable Service as a Mayor. In addition, Act 447 members who would attain 30 years of Creditable Service by December 31, 2013 would be eligible to retire at any time.

Act 447 members who were not eligible to retire as of June 30, 2013 and did not attain 30 years of Creditable Service by December 31, 2013 would be eligible to retire upon attainment of the retirement eligibility age shown in the following table with 10 years of Creditable Service.

Date of Birth	Attained Age as of June 30, 2013	Retirement Eligibility Age
July 1, 1957 or later	55 or less	61
July 1, 1956 to June 30, 1957	56	60
Before July 1, 1956	57 and up	59

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In addition to the requirements in the preceding table, Act 447 Public Officers in High Risk Positions who were not eligible to retire as of June 30, 2013 and did not attain 30 years of Creditable Service by December 31, 2013 are eligible to retire directly from active service upon the attainment of age 55 with 30 years of Creditable Service.

- b. Eligibility for Act 1 members: Act 1 members who were eligible to retire as of June 30, 2013 would continue to be eligible to retire at any time. Prior to July 1, 2013, Act 1 members could retire upon (1) attainment of age 55 with 25 years of Creditable Service, (2) attainment of age 65 with 10 years of Credited Service, (3) for Public Officers in High Risk Positions, any age with 30 years of Creditable Service, and (4) for Mayors, attainment of age 50 with 8 years of Creditable Service as a Mayor.

Act 1 members who were not eligible to retire as of June 30, 2013 would be eligible to retire upon attainment of age 65 with 10 years of Creditable Service. In addition, Act 1 Public Officers in High Risk Positions who were not eligible to retire as of June 30, 2013 are eligible to retire directly from active service upon the attainment of age 55 with 30 years of Creditable Service.

- c. Eligibility for System 2000 members: System 2000 members who were eligible to retire as of June 30, 2013 would continue to be eligible to retire at any time. Prior to July 1, 2013, System 2000 members could retire upon attainment of age 55 for Public Officers in High Risk Positions and attainment of age 60 otherwise.

System 2000 members who were not eligible to retire as of June 30, 2013 would be eligible to retire upon attainment of age 55 for Public Officers in High Risk Positions and upon attainment of the retirement eligibility age shown in the following table otherwise.

Date of Birth	Attained Age as of June 30, 2013	Retirement Eligibility Age
July 1, 1957 or later	55 or less	65
July 1, 1956 to June 30, 1957	56	64
July 1, 1955 to June 30, 1956	57	63
July 1, 1954 to June 30, 1955	58	62
Before July 1, 1954	59 and up	61

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- d. Eligibility for members hired after June 30, 2013: Attainment of age 58 if a Public Officer in a High Risk Position and attainment of age 67 otherwise.
- e. Benefit: An annuity payable for the lifetime of the member equal to the annuitized value of the balance in the Defined Contribution Hybrid Contribution Account at the time of retirement, plus, for Act 447 and Act 1 members, the Accrued Benefit determined as of June 30, 2013. If the balance in the Defined Contribution Hybrid Contribution Account is \$10,000 or less, the balance in the Defined Contribution Hybrid Contribution Account shall be paid as a lump sum instead of as an annuity.
- f. Accrued Benefit as of June 30, 2013 for Act 447 members: The accrued benefit as of June 30, 2013 shall be determined based on the Average Compensation for Act 447 members, the years of Creditable Service, and the attained age of the member all as of June 30, 2013. For Act 447 Mayors, the Highest Compensation as a Mayor is determined as of June 30, 2013.

If the Act 447 member had at least 30 years of Creditable Service as of June 30, 2013, the accrued benefit equals 65% of Average Compensation if the member was under age 55 as of June 30, 2013 or 75% of Average Compensation if the member was at least age 55 as of June 30, 2013. For participants selecting the Coordination Plan, the benefit is re-calculated at SSRA as 1.5% of Average Compensation up to \$6,600 multiplied by years of Creditable Service, up to 30 years, plus 65% (75% if member was at least age 55 as of June 30, 2013) of Average Compensation in excess of \$6,600.

If the Act 447 member had less than 30 years of Creditable Service as of June 30, 2013, and attains 30 years of Creditable Service by December 31, 2013, the accrued benefit equals 55% of Average Compensation if the member was under age 55 as of June 30, 2013 or 60% of Average Compensation if the member was at least age 55 as of June 30, 2013. For participants selecting the Coordination Plan, the benefit is re-calculated at SSRA as 1.5% of Average Compensation up to \$6,600 multiplied by years of Creditable Service, up to 30 years, plus 55% (60% if member was at least age 55 as of June 30, 2013) of Average Compensation in excess of \$6,600. Member contributions received from Act 447 members eligible for this transitory benefit during the period beginning July 1, 2013 and ending upon the attainment of 30 years of Creditable Service are considered pre-July 1, 2013

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contributions; the contributions to the Defined Contribution Hybrid Contribution Account begin after the member attains 30 years of Creditable Service.

If the Act 447 member had less than 30 years of Creditable Service as of December 31, 2013, the accrued benefit equals 1.5% of Average Compensation multiplied by years of Creditable Service up to 20 years, plus 2% of Average Compensation multiplied by years of Creditable Service in excess of 20 years. Maximum benefit is 75% of Average Compensation. Except for Commonwealth Police and Commonwealth Firefighters, the benefit is actuarially reduced for each year payment commences prior to age 58. For participants selecting the Coordination Plan, the basic benefit is re-calculated at SSRA as 1% of Average Compensation up to \$6,600 multiplied by years of Creditable Service up to 20 years, plus 1.5% of Average Compensation up to \$6,600 multiplied by years of Creditable Service in excess of 20 years, plus 1.5% of Average Compensation in excess of \$6,600 multiplied by years of Creditable Service up to 20 years, plus 2.0% of Average Compensation in excess of \$6,600 multiplied by years of Creditable Service in excess of 20 years. Except for Police and Firefighters, the benefit is actuarially reduced for each year payment commences prior to age 58.

For Act 447 Mayors with at least 8 years of Creditable Service as a mayor, the accrued benefit will not be less than 5% of Highest Compensation as a Mayor for each year of Creditable Service as a Mayor up to 10 years, plus 1.5% of Highest Compensation as Mayor for each year of non-Mayoral Creditable Service up to 20 years, plus 2.0% of Highest Compensation as Mayor for each year of non-Mayoral Creditable Service in excess of 20 years. Non-Mayoral Creditable Service includes service earned as a Mayor in excess of 10 years. Maximum benefit is 90% of Highest Compensation as a Mayor.

- g. Accrued Benefit as of June 30, 2013 for Act 1 members: The accrued benefit as of June 30, 2013 shall be determined based on the Average Compensation for Act 1 members, the years of Creditable Service, and the attained age of the member all as of June 30, 2013. For Act 1 Mayors, the Highest Compensation as a Mayor is determined as of June 30, 2013.

If the Act 1 Commonwealth Police or Commonwealth Firefighter had at least 30 years of Creditable Service as of June 30, 2013, the accrued benefit equals 65% of Average Compensation if the member was under age 55 as of June 30, 2013

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or 75% of Average Compensation if the member was at least age 55 as of June 30, 2013.

For all other Act 1 members, the accrued benefit equals 1.5% of Average Compensation multiplied by years of Creditable Service. The benefit is actuarially reduced for each year payment commences prior to age 65.

For Act 1 Mayors with at least 8 years of Creditable Service as a mayor, the accrued benefit will not be less than 5% of Highest Compensation as a Mayor for each year of Creditable Service as a Mayor up to 10 years, plus 1.5% of Highest Compensation as Mayor for each year of non-Mayoral Creditable Service up to 20 years, plus 2.0% of Highest Compensation as Mayor for each year of non-Mayoral Creditable Service in excess of 20 years. Non-Mayoral Creditable Service includes service earned as a Mayor in excess of 10 years. Maximum benefit is 90% of Highest Compensation as a Mayor.

- h. Compulsory Retirement: All Act 447 and Act 1 Public Officers in High Risk Positions must retire upon attainment of age 58 and 30 years of creditable service. A two year extension may be requested by the member from the Superintendent of the Puerto Rico Police, the Chief of the Firefighter Corps, or supervising authority as applicable.

7. Termination Benefits

a. Lump Sum Withdrawal

Eligibility: A Member is eligible upon termination of service prior to 5 years of service or if the balance in the Defined Contribution Hybrid Contribution Account is \$10,000 or less.

Benefit: The benefit equals a lump sum payment of the balance in the Defined Contribution Hybrid Contribution Account as of the date of the permanent separation of service.

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b. Deferred Retirement

Eligibility: A Member is eligible upon termination of service with 5 or more years of service (10 years of Creditable Service for Act 447 and Act 1 members) prior to the applicable retirement eligibility, provided the member has not taken a lump sum withdrawal of the Accumulated Contributions and the Defined Contribution Hybrid Contribution Account.

Benefit: An annuity payable for the lifetime of the member commencing at the applicable retirement eligibility age equal to the annuitized value of the balance in the Defined Contribution Hybrid Contribution Account at the time of retirement, plus, for Act 447 and Act 1 members, the Accrued Benefit determined as of June 30, 2013.

8. Death Benefits

a. Pre-retirement Death Benefit

Eligibility: Any current non-retired member is eligible.

Benefit: A refund of the Defined Contribution Hybrid Contribution Account, plus the Accumulated Contributions for Act 447 and Act 1 members.

b. High-Risk Death Benefit under Act 127

Eligibility: Police, firefighters, and other employees in specified high-risk positions who die in the line of work due to reasons specified in Act 127 of 1958 (as amended).

Spouse's Benefit: 50% of the participant's Compensation at date of death, payable as an annuity until death or remarriage (Act 127 of 1958 as amended).

Children's Benefit: 50% of the participant's Compensation at date of death, payable as an annuity, allocated pro-rata among eligible children. The annuity is payable for life for a disabled child, until age 18 for a non-disabled child not pursuing studies, and until age 25 for a non-disabled child who is pursuing studies. (Act 127 of 1958 as amended)

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Benefit if no spouse or children: The parents of the member shall each receive 50% of the participant's Compensation at date of death, payable as an annuity for life. (Act 127 of 1958 as amended)

Post-death increases: Effective July 1, 1996 and subsequently every three years, the above death benefits are increased by 3% provided that the beneficiary(ies) had been receiving payments for at least three years. (Act 127 of 1958 as amended)

The cost of these benefits is paid by the General Fund (Act 127 of 1958 as amended).

c. Post-retirement Death Benefit for Members who retired prior to July 1, 2013

Eligibility: Any retiree or disabled member receiving a monthly benefit who has not elected a reversionary annuity and whose benefits commenced prior to July 1, 2013.

Benefit: The benefit is as follows (Law 105 as amended by Law 4):

- (i) For those married or with dependent children at the time of death, the annual income to a widow, or widower or dependent children is equal to 60% (50% if in the Coordination Plan - 30% prior to January 1, 2004) of the retirement benefit payable for life for a surviving spouse and/or disabled children and payable until age 18 (age 25 if pursuing studies) for non-disabled children. If in the Coordination Plan, the benefit to the surviving spouse does not begin until the spouse's attainment of age 60 and the surviving spouse must have been married to the member for at least 10 years to be eligible for this benefit. The increase in the percentage from 30% to 50% if in the Coordination Plan is paid by the General Fund for former government employees or by the public enterprise or municipality for their former employees (Act 158 of 2003).
- (ii) The benefit, when there is no relation as stated above, is equal to the remaining balance of Accumulated Contributions at the time of retirement after the deduction of lifetime annual income paid and is payable to a beneficiary or to the Member's estate. In no case shall the benefit be less than \$1,000.

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Either the General Fund for former government employees or the public enterprise or municipality for their former employees pays the difference, up to \$250, between (1) the Accumulated Contributions less the lifetime annual income paid and (2) \$1,000. The System pays for the rest. (Article 2-113 and Act 524 of 2004)

d. Post-retirement Death Benefit for Members who retired after June 30, 2013

Eligibility: Any retiree or disabled member who began receiving a monthly benefit after June 30, 2013.

Benefit: If the member elected at the time of retirement to transfer a portion of the annuity to a beneficiary by selecting an actuarially equivalent optional form of payment, the applicable survivor benefit.

For all members, the excess, if any, of the Defined Contribution Hybrid Contribution Account, plus the Accumulated Contributions for Act 447 and Act 1 members, at the time of retirement over the total annuity payments paid to the member and any beneficiary per the terms of the optional form of payment shall be payable to a beneficiary or the Member's estate.

- e. Beneficiaries receiving occupational death benefits as of June 30, 2013 continue to be eligible to receive such benefits.

9. Disability Benefits

a. Disability

Eligibility: All members are eligible upon the occurrence of disability.

Benefit: The balance of the Defined Contribution Hybrid Contribution Account payable as lump sum distribution, an immediate annuity or a deferred annuity at the election of the participant. Act 447 and Act 1 members remain eligible to receive the accrued benefit as of June 30, 2013 commencing at the applicable retirement eligibility age.

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b. High Risk Disability under Act 127

Eligibility: Police, firefighters, and other employees in specified high-risk positions who are disabled in the line of work due to reasons specified in Act 127 of 1958 (as amended).

Benefit: 80% (100% for Act 447 members) of Compensation as of date of disability, payable as an annuity. If the member dies while still disabled, this annuity benefit continues to his beneficiaries. Beneficiaries include the surviving spouse and/or disabled children (for life), non-disabled children until age 18 (age 25 if pursuing studies), and the parents if no other beneficiaries. Effective July 1, 1996 and subsequently every three years, the disability benefit is increased by 3% provided that the member (or beneficiary) had been receiving payments for at least three years. (Act 127 of 1958 as amended) The cost of these benefits is paid by the General Fund.

- c. Members who qualified for occupational or non-occupational disability benefits as of June 30, 2013 continue to be eligible to receive such benefits.

10. Minimum Benefits

- a. Past Ad hoc Increases: The legislature, from time to time, increases pensions for certain retirees as described in Act 124 approved on June 8, 1973 and Act 23 approved on September 23, 1983. The benefits are paid 50% by the General Fund and 50% by the System.
- b. Minimum Benefit for members who retired before July 1, 2013: The minimum monthly lifetime income for members who retired or become disabled before July 1, 2013 is \$500 per month effective July 1, 2013 (\$400 per month effective July 1, 2007 and \$300 per month up to June 30, 2007). The increase in the minimum monthly benefit from \$200 per month to \$300 per month is paid by the General Fund for former government employees or by the public enterprise or municipality for their former employees. The increase in the minimum monthly benefit from \$300 per month to \$400 per month is to be paid by the System for former government employees or by the public enterprise or municipality for their former employees. (Act 156 of 2003, Act 35 of 2007, and Act 3 of 2013.)

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- c. Coordination Plan Minimum Benefit: A minimum monthly benefit is payable upon attainment of SSRA such that the benefit, when added to the Social Security Benefit, is not less than the benefit payable prior to SSRA.
- 11. Cost-of-Living Adjustments (COLA) to Pension Benefits: The legislature, from time to time, increases pensions by 3% for retired and disabled members. Beneficiaries are not entitled to COLAs granted after the retiree's death. The first increase was granted by Act 10 of 1992. Subsequent 3% increases have been granted every third year since 1992, with the latest 3% increase established on April 24, 2007 and effective July 1, 2007 (retroactive to January 1, 2007) for retired and disabled members that were receiving a monthly benefit on or before January 1, 2004 (Act 35). In addition, effective July 1, 2008, any retired or disabled member that was receiving a monthly annuity on or before January 1, 2004 less than \$1,250 per month received an increase of up to 3% without exceeding the limit of \$1,250 per month (Act 35). The COLAs granted in 1992 to all retirees and in 1998 to retirees who are former government or municipal employees shall be paid by the System. All other COLAs granted in 1995 and later shall be paid by the General Fund for former government employees or by the public enterprise or municipality for their former employees. (Various Acts)
- 12. Medical Insurance Plan Contribution: A payment of up to \$100 per month to the eligible medical insurance plan selected by the retiree or disabled member provided the member retired prior to July 1, 2013. This benefit is paid from the Supplemental Contributions (see item 14c) received from the General Fund for former government employees or by the public corporation or municipality for their former employees. (Act 483 as amended by Act 3)
- 13. Special "Bonus" Benefits:
 - a. Christmas Bonus: An annual bonus of \$200 for each retiree, beneficiary, and disabled member paid in December provided the member retired prior to July 1, 2013. This benefit is paid from the Supplemental Contributions (see item 14c) received from the General Fund for former government employees or by the public corporation or municipality for their former employees. (Act 144 as amended by Act 3)
 - b. Medication Bonus: An annual bonus of \$100 for each retiree, beneficiary, and disabled member to cover health costs paid in July provided the member retired

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prior to July 1, 2013. Evidence of coverage is not required. The amount is prorated if there are multiple beneficiaries. This benefit is paid from the Supplemental Contributions (see 14c) received from the General Fund for former government employees or by the public corporation or municipality for their former employees. (Act 155 as amended by Act 3)

14. Contributions

- a. **Member Contributions:** Effective July 1, 2013, contributions by members are 10% of Compensation. However, for Act 447 Members who selected the Coordination Plan, the member contributions are 7% of Compensation up to \$6,600 plus 10% of Compensation in excess of \$6,600 during the 2013-2014 fiscal year and 8.5% of Compensation up to \$6,600 plus 10% of Compensation in excess of \$6,600 during the 2014-2015 fiscal year. Members may voluntarily make additional contributions to their Defined Contribution Hybrid Contribution Account.

Prior to July 1, 2013, contributions by Act 447 Members selecting the Coordination Plan were 5.775% of Compensation up to \$6,600 plus 8.275% of Compensation in excess of \$6,600. Contributions by all other Members were 8.275% of Compensation. System 2000 members may also have made voluntary contributions of up to 1.725% of compensation prior to July 1, 2013.

- b. **Employer Contributions:** Prior to July 1, 2011, employer contributions were 9.275% of Compensation. Effective July 1, 2011, employer contributions are 10.275% of Compensation. For the next four fiscal years effective July 1, employer contributions will increase annually by 1% of Compensation. For the next five fiscal years, employer contributions will increase annually by 1.25% of Compensation, reaching an employer contribution rate of 20.525% of Compensation effective July 1, 2020. (Article 2-116 as amended by Act 116 of 2011 and Act 3 of 2013).
- c. **Supplemental Contributions from the General Fund, Public Corporations, and Municipalities:** Effective July 1, 2013, the System will receive a supplemental contribution of \$2,000 each fiscal year for each pensioner (including beneficiaries receiving survivor benefits) who was previously benefitting as an Act 447 or Act 1 member while an active employee. This supplemental contribution will be paid by the General Fund for former government employees or by the public corporation or municipality for their former employees. (Act 3 of 2013)

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- d. Additional Uniform Contribution: During the 2013-2014 fiscal year, the System will receive an Additional Uniform Contribution of \$120 million. During each fiscal year from 2014-2015 through 2032-2033, the System will receive an Additional Uniform Contribution certified by the external actuary of the System as necessary to avoid having the projected gross assets of the System, during any subsequent fiscal year, to fall below \$1 billion. The Additional Uniform Contribution will be paid by the General Fund, public corporations, and municipalities. (Act 32 of 2013 as amended)
15. Service Purchase: Prior to July 1, 2013, active members with eligible service from prior employment may elect to purchase service in PRGERS. The cost of the purchase is calculated by applying the PRGERS statutory contribution rates to the member's salary during the years of service at the former employer. The amount due to member contributions is accumulated at 9.5% per year (6% prior to April 4, 2013) until 6 months after the time of the service purchase request. Any amount not covered by asset transfers from the member's prior pension fund is payable by the member (Law 10 of 1992, Law 14 of 1981, Law 122 of 2000, Laws 203 and 33 of 2007). Effective July 1, 2013, only veterans may purchase service for time spent under military leave prior to June 30, 2013. In addition, public employees in active military service are permitted to make voluntary contributions to the Defined Contribution Hybrid Contribution Account during the years of military leave.
16. Law 70 Retirement Incentive: During the 2010-2011 fiscal year, Law 70 provided for an early retirement incentive. Additional window periods occurred through December 31, 2012. Under Section 4A of Law 70, active members could terminate employment immediately and receive a bonus equal to one, three, or six months of salary (paid by the Commonwealth). Under Section 4B of Law 70, active members who had at least 15 years of service, but less than 30 years of service, were able to retire immediately with an enhanced benefit ranging from 37.5% to 50% of salary. This enhanced benefit is paid by the General Fund for government employees and Public Corporations for their employees until the member reaches the later of age 55 or the date the member would have completed 30 years of service had the member continued working. The System will pay the benefit after this time period. While the General Fund / Public Corporation is paying the pension benefit to the member or any surviving beneficiary, the General Fund / Public Corporation will also pay a contribution equal to the employer contribution rate (12.275% for the 2013-2014 fiscal year plus the employee

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contribution rate for Public Corporations (currently 10%)) of final salary to the System. The employer contribution rate applied to final salary increases as under Act 116-2011 to a rate of 20.525% of payroll in 2020-2021 and thereafter. Under Section 4C of Law 70, active members who had at least 30 years of service could retire immediately and receive a bonus equal to six months of salary (paid by the Commonwealth). For any active employee who retired under Section 4C, the Public Corporation will pay a contribution equal to the employer contribution rate (12.275% for the 2013-2014 fiscal year, increasing to 20.525% in 2020-2021 and thereafter) plus the employee contribution rate (currently 10%) of final salary to the System for five years after retirement.

17. Changes in Plan Provisions since Prior Valuation

Act 211-2015 is an early retirement incentive program that was passed on December 8, 2015 which was amended by Act 170-2016 to expand the eligible group of members. No retirements due to Act 211-2015 or Act 170-2016 have occurred as of the June 30, 2016 measurement date of this valuation. Impacts of Act 211-2015 and Act 170-2016 will be reflected in future valuations when retirements have actually occurred and census data is available.

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Investment Return: 6.55% per annum, net of investment expenses. Based on the System's investment policy, including target asset allocation and expectations regarding the loan portfolio, and Milliman's capital market assumptions as of June 30, 2016.

Municipal Bond Rate: 2.85% per annum (Bond Buyer General Obligation 20-Bond Municipal Bond Index)

GASB 67 discount rate: 2.85% per annum

GASB 45 discount rate: 3.0% per annum. Based on the Commonwealth's asset allocation for the general assets that are used to pay this benefit and Milliman's capital market assumptions as of June 30, 2016.

Compensation Increases: 3.0% per year. No compensation increases are assumed until July 1, 2021 as a result of the Act 3-2017 four year extension of the Act 66-2014 salary freeze and the current general economy. Based on professional judgment and System input.

Defined Contribution Hybrid Contribution Account: Member contributions to the Defined Contribution Hybrid Contribution Account are assumed to be 10.0% of Compensation. Defined Contribution Hybrid Contribution Accounts are assumed to grow prospectively using a 5.24% annual investment return (80% of the net investment return assumption as shown above).

Basis for demographic assumptions: The post-retirement healthy and disabled mortality assumptions used in this valuation are based on a study of plan's experience from 2007 to 2012 and updated expectations regarding future mortality improvement. Most other demographic assumptions used in this valuation are based on a 2009 experience study using data as of June 30, 2003, June 30, 2005, and June 30, 2007. Certain demographic assumptions (e.g. termination and retirement) were impacted by the Act 3 pension reforms and were revised based on the new retirement eligibility and expected future experience. All assumptions were reviewed with PRGERS staff for reasonableness and are documented in this Section.

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Termination: Withdrawal rates vary by employment category, age, and service.

Employment Category	Annual Rate of Termination
Act 447 General Employees under age 58 or less than 10 years of service	2.0%
Act 447 General Employees at least age 58 with at least 10 years of service	0.0
Act 447 Public Officers in High Risk Positions under age 50 or less than 10 years of service	1.6
Act 447 Public Officers in High Risk Positions ages 50 to 57 with less than 25 years of service	1.6
Act 447 Public Officers in High Risk Positions at least age 58 with at least 10 years of service or at least age 50 with at least 25 years of service	0.0
Act 1 General Employees	2.0
Act 1 Public Officers in High Risk Positions	1.6
System 2000 and Act 3 General Employees	2.0
System 2000 and Act 3 Public Officers in High Risk Positions	1.6

Commencement of benefits for terminated vested members: Future terminated members with a vested benefit are assumed to retire at the ages shown below, or at the attained age on the valuation date if later.

Employment Category	Act 447	Act 1	System 2000	Act 3
General Employees	61	65	65	67
Public Officers in High Risk Positions	61	65	55	58

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Retirement: Rates of retirement vary by employment category, Act, age and years of Creditable Service, and whether the member was eligible to retire as of June 30, 2013 for Act 447, Act 1, and System 2000 members.

Act 447 General Employees who were eligible to retire as of June 30, 2013 or attained 30 years of Creditable Service by December 31, 2013			
	Service condition		
Age	10 years	25 years	30 years
45 to 49			10.0%
50 to 53			15.0
54			20.0
55 to 57		10.0%	20.0
58	5.0%	10.0	20.0
59 to 64	10.0	15.0	20.0
65 to 69	15.0	15.0	20.0
70	100.0	100.0	100.0

Act 447 General Employees who were not eligible to retire as of June 30, 2013 and did not attain 30 years of Creditable Service by December 31, 2013		
	Year of Retirement Eligibility	
Age	First	Second and Later
59	20.0%	15.0%
60	25.0	15.0
61 to 69	30.0	15.0
70	100.0	100.0

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Act 447 Public Officers in High Risk Positions who were eligible to retire as of June 30, 2013			
	Service condition		
Age	10 years	25 years	30 years
45 to 48			10.0%
49			15.0
50		7.0%	15.0
51 to 56		15.0	20.0
57		20.0	30.0
58	2.5%	20.0	100.0
59 to 64	10.0	25.0	100.0
65 to 69	10.0	30.0	100.0
70	100.0	100.0	100.0

Act 447 Public Officers in High Risk Positions who were not eligible to retire as of June 30, 2013		
	Service condition	
Age	10 years	30 years
55		50.0%
56		15.0
57		15.0
58		100.0
59 to 64	25.0%	100.0
65	100.0	100.0

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Act 1 General Employees who were eligible to retire as of June 30, 2013		
	Service condition	
Age	10 years	25 years
55 to 57		4.5%
58		4.5
59		8.0
60		9.0
61		10.0
62		13.0
63 to 64		14.0
65	15.0%	50.0
66	15.0	15.0
67	100.0	100.0

Act 1 General Employees who were not eligible to retire as of June 30, 2013	
Age	Any Service
65	50.0%
66	20.0
67	100.0

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Act 1 Public Officers in High Risk Positions who were eligible to retire as of June 30, 2013			
	Service condition		
Age	10 years	25 years	30 years
45 to 48			10.0%
49 to 50			15.0
51 to 54			20.0
55 to 56		5.0%	20.0
57		5.0	30.0
58		5.0	100.0
59 to 60		5.0	
61 to 64		10.0	
65	10.0%	50.0	
66 to 69	10.0	10.0	
70	100.0	100.0	

Act 1 Public Officers in High Risk Positions who were not eligible to retire as of June 30, 2013		
	Service condition	
Age	10 years	30 years
55		40.0%
56		15.0
57		15.0
58 to 64		100.0
65	100.0	100.0

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System 2000 General Employees		
Age	Eligible to Retire as of June 30, 2013	Not Eligible to Retire as of June 30, 2013
60	15.0%	
61 to 64	15.0	10.0%
65	15.0	40.0
66	15.0	20.0
67	100.0	100.0

System 2000 Public Officers in High Risk Positions	
Age	Any Service
55	25.0%
56 to 64	20.0
65 to 66	25.0
67	100.0

Act 3 Employees		
Age	General Employees	Public Officers in High Risk Positions
58		30.0%
59 to 64		20.0
65 to 66		25.0
67	100.0%	100.0

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Disability: Rates are based on the six month elimination period rates in the 1987 Commissioners Group Disability Table, adjusted as set forth in the table below.

	Adjustment to 1987 CGDT	
Act	Members Covered under Act 127	Other Members
447	100%	75%
1	100%	75%
2000 and 3 General Employees	<ul style="list-style-type: none"> • 100% for ages 50 and younger • 300% for ages 60 and older • Interpolated from 100% to 300% in the 10 years between age 50 and age 60 	75%
2000 and 3 Public Officers in High Risk Positions	<ul style="list-style-type: none"> • 100% for ages 40 and younger • 300% for ages 50 and older • Interpolated from 100% to 300% in the 10 years between age 40 and age 50 	n/a

100% of disabilities occurring while in active service are assumed to be occupational for members covered under Act 127.

Pre-retirement Mortality: For general employees not covered under Act 127, RP-2014 Employee Mortality Rates for males and females adjusted to reflect Mortality Improvement Scale MP-2016 from the 2006 base year, and projected forward using MP-2016 on a generational basis. For members covered under Act 127, RP-2014 Employee Mortality Rates with blue collar adjustments for males and females adjusted to reflect Mortality Improvement Scale MP-2016 from the 2006 base year, and projected forward using MP-2016 on a generational basis. As generational tables, they reflect mortality improvements both before and after the measurement date.

100% of deaths while in active service are assumed to be occupational for members covered under Act 127.

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Post-retirement Healthy Mortality: Rates which vary by gender are assumed for healthy retirees and beneficiaries based on a study of plan's experience from 2007 to 2012 and updated expectations regarding future mortality improvement. The 2010 base rates are equal to 92% of the rates from the UP-1994 Mortality Table for Males and 95% of the rates from the UP-1994 Mortality Table for Females, both projected from 1994 to 2010 using Scale AA. These base rates are projected using Mortality Improvement Scale MP-2016 on a generational basis. As a generational table, it reflects mortality improvements both before and after the measurement date.

Post-retirement Disabled Mortality: Rates which vary by gender are assumed for disabled retirees based on a study of plan's experience from 2007 to 2012 and updated expectations regarding future mortality improvement. The 2010 base rates are equal to 105% of the rates from the UP-1994 Mortality Table for Males and 115% of the rates from the UP-1994 Mortality Table for Females. These base rates are projected using Mortality Improvement Scale MP-2016 on a generational basis. As a generational table, it reflects mortality improvements both before and after the measurement date.

Marriage: 100% of current active members covered under Act 127 who die in service or become disabled are assumed to have qualifying beneficiaries receiving the maximum benefits possible, which are approximated by a spouse with males 4 years older than females.

Form of Payment: For members retiring after June 30, 2013 (other than under Law 127), upon disability an immediate lump sum distribution of the Defined Contribution Hybrid Contribution Account plus, for Act 447 and Act 1 members, a modified cash refund of the accrued benefit as of June 30, 2013 commencing at retirement eligibility; otherwise, a modified cash refund.

For members retiring after June 30, 2013 under Law 127, a Joint & 100% Survivor benefit of the Law 127 Disability benefit.

Marital status was provided for current retired and disabled members who retired prior to July 1, 2013. For those indicated as married, a joint and survivor annuity was assumed (as shown in the following table), with an adjustment for the probability the spouse has pre-deceased the retiree as of the valuation date. Those not married were assumed to have a modified cash refund (as shown in the following table). The spouse's date of birth

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was imputed based on an assumed age difference of 4 years with males older than females.

Assumed Form of Payment for Members retired before July 1, 2013		
Act	Marital Status	Form of Payment
447	Married at retirement	Joint and 60% survivor benefit – Supplementation Joint and 50% survivor benefit – Coordinated (30% is Basic System Benefit) (20% is System Administered Benefit)
447	Not married at retirement	Modified cash refund (approximated by single life annuity with 3 years certain)
1	Married at retirement	Joint and 60% survivor benefit
1	Not married at retirement	Modified cash refund (approximated by single life annuity with 3 years certain for Mayors, Police & Fire and 5 years certain for other members)
305 (System 2000) - Disabled	Married at retirement	Joint and 60% survivor benefit
305 (System 2000) - Disabled	Not married at retirement	Modified cash refund (approximated by single life annuity with 5 years certain)

All Act 127 retirees were assumed to have a joint and 100% survivor benefit regardless of marital status. The survivor was approximated by a spouse with an assumed age difference of 4 years with males older than females. An adjustment was made for the probability the survivor has pre-deceased the retiree as of the valuation date.

Members who terminate employment with a vested benefit are assumed to elect to receive a deferred pension benefit in lieu of a refund of contributions.

No future dependent children were assumed to become beneficiaries.

No surviving spouse is assumed to become re-married.

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PUERTO RICO GOVERNMENT EMPLOYEES RETIREMENT SYSTEM

SECTION VIII – SUMMARY OF ACTUARIAL ASSUMPTIONS AS OF JUNE 30, 2016

Medical Insurance Plan Contribution: 85% of current service and disability retirees who retired before July 1, 2013 are assumed to receive a monthly medical insurance continuation benefit of \$100 per month.

Deferred Vested Participants: Complete census data on deferred vested participants was not available. The actuarial accrued liabilities for Act 447 and Act 1 members have been increased by 5% to approximate the value of the liability on behalf of deferred vested participants.

Service Purchase and Data Reporting Issues: Active liabilities for benefits earned prior to June 30, 2013 are increased by 20% for members of Act 447 to approximate the value of service purchases not yet reflected in the census data, and also data reporting issues, including members who have higher past salaries than provided in the valuation census data, and members who are reported as participating in Act 1 or System 2000 while active but who retire under Act 447.

Return of Contributions to Former Members: Average of past three year's actual amounts, rounded to the nearest \$1,000,000. For the 2016-2017 plan year, this amount is \$85,000,000.

Census Data Collection Date: July 1, 2015. When information is provided by participant category in this report, the category is determined as of the census data collection date.

Special Data Adjustments: Upon review of the July 1, 2015 census data submitted by PRGERS, we observed several areas where data was missing, inconsistent, or invalid. We reviewed each issue and presented an analysis to PRGERS that consisted of a description of the data issue, a proposed solution, and a brief rationale supporting the proposed solution. The recommendations were reviewed by PRGERS staff, revised as applicable, and applied to the census data in order to prepare it for use in the valuation. The majority of the data edits and assumptions were applied to the following data items:

- Date of birth
- Date of hire
- Gender
- Allocation of Basic System Benefits and System Administered Benefits
- Accumulated Employee Contributions
- Defined Contribution Hybrid Contribution Account Balances

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SECTION VIII – SUMMARY OF ACTUARIAL ASSUMPTIONS AS OF JUNE 30, 2016

- Employment Category Code (Police / Fire Code)
- Plan Code (Coordinated / Supplementation option)
- Form of payment and beneficiary characteristics, if applicable
- Benefit commencement date
- Retirement Law
- Entity Class

The census data provided for most active participants of System 2000 and Act 3 as of June 30, 2015 appeared to reflect the members' Defined Contribution Hybrid Contribution Accounts as of July 1, 2016, instead of as of July 1, 2015. Adjustments were made to approximate account balances as of July 1, 2015.

Credited service is based on the greater of "Years Worked" reported in the valuation census data and the elapsed time from date of hire to the valuation date.

Accrued benefits as of June 30, 2013 were estimated for Act 447 and Act 1 active members primarily based on the data submitted for the June 30, 2013 and earlier valuations.

The census data provided for the participants in pay status as of July 1, 2015 did not consistently reflect the increase in the minimum benefit to \$500 per month under Act 3 for participants in pay status prior to July 1, 2013. Pension benefits were increased as necessary to bring the total pension benefits for pre July 1, 2013 retirees and disabled retirees as of July 1, 2015 to \$500 per month and the total pension benefits for pre July 1, 2013 beneficiaries as of July 1, 2015 to \$250 per month. The increase was assumed to be a Basic System Benefit.

For current disabled retirees and beneficiaries receiving benefits under Act 127, the pension benefits paid by System assets (e.g. the Basic System Benefit) was assumed to be 30% of the total reported pension benefit.

Benefits for current beneficiaries who are under age 23 as of the valuation date were assumed to cease at age 23. Benefits for current beneficiaries who are age 23 or older as of the valuation data were assumed to be payable for life. In addition, the current level of benefit for all beneficiaries was assumed to remain constant.

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Benefits not valued: The minimum post-retirement death benefit of \$1,000 for retirees without surviving beneficiaries who retired prior to July 1, 2013 is not explicitly valued. The additional liability associated with this benefit is expected to be de minimis.

The special mayor retirement age for Act 447 and Act 1 mayors is not valued. The additional liability due to this reduced retirement age is expected to be de minimis.

Moreover, this report does not address the guarantee insurance reserve for life insurance on loans to plan members. (Please see Notes to Basic Financial Statements on pages 25 and 61 and Statements of Plan Net Position on page 21 of the System's June 30, 2014 Basic Financial Statements.)

Changes in actuarial assumptions since the prior valuation: The investment return assumption for GASB 45 purposes was decreased from 3.10% to 3.00%.

The projected mortality improvement scale was updated from Scale MP-2015 to Scale MP-2016, which was published by the Society of Actuaries in October 2016.

No compensation increases are assumed until July 1, 2021 as a result of the Act 3-2017 four year extension of the Act 66-2014 salary freeze and the current general economy.

The amount of the return of contributions due to former members as of June 30, 2016 was based on a trailing three-year average of actual amounts.

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SECTION VIII – SUMMARY OF ACTUARIAL METHODS AS OF JUNE 30, 2016

The ultimate cost of a pension plan is the excess of actual benefits and administrative expenses paid over actual net investment return on plan assets during the plan's existence until the last payment has been made to the last participant. The plan's "actuarial cost method" determines the expected incidence of actuarial costs by allocating portions of the ultimate cost to each plan year. The cost method is thus a budgeting tool to help to ensure that the plan will be adequately and systematically funded and accounted for. There are several commonly-used cost methods which differ in how much of the ultimate cost is assigned to each prior and future year. Therefore, the pattern of annual contributions and accounting expense varies with the choice of cost method. Annual contributions and accounting expense are also affected by the "asset valuation method" (as well as the plan provisions, actuarial assumptions, and actual plan demographic and investment experience each year).

Actuarial Cost Method

The plan's actuarial cost method is the entry age normal method. Under this method, a projected benefit is determined at each active participant's assumed retirement age assuming future compensation increases. The plan's normal cost is the sum of each active participant's annual cost for the current year of service determined such that, if it were calculated as a level percentage of his compensation each year, it would accumulate at the valuation interest rate over his total prior and future years of service to his assumed retirement date into an amount sufficient to fund his projected benefit. The plan's accrued liability is the sum of (a) the accumulation of each active participant's normal costs attributable to all prior years of service plus (b) the present value of each inactive participant's future benefits.

Asset Valuation Method

The Market Value of Assets.

Liability Determination

The results as of June 30, 2016 are based on projecting the System obligations determined as of the census data collection date of July 1, 2015 for one year using roll-forward methods, assuming no liability gains or losses. The amount of the return of contributions due to former members as of June 30, 2016 was based on a trailing three-year average of actual amounts.

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PUERTO RICO GOVERNMENT EMPLOYEES RETIREMENT SYSTEM

SECTION VIII – SUMMARY OF ACTUARIAL METHODS AS OF JUNE 30, 2016

Changes in actuarial methods since the prior valuation

None.

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